

MERGER CONTROL IN DIGITAL MARKETS: NEW CHALLENGES AND OLD PROBLEMS



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This paper delves into the complexities surrounding mergers in digital markets, presenting three key challenges in evaluating the impact of large technology platform mergers on competition conditions. Firstly, it addresses the difficulties in market definition due to rapidly evolving business models and intrinsic characteristics of multilateral platforms in digital markets. Secondly, it explores the suitability of the “killer acquisitions” theory of harm, asserting that not all start-up acquisitions by major digital platforms are inherently anti-competitive. In particular, the paper emphasizes the importance of investigating the motives behind such mergers, distinguishing between attempts to neutralize competition and efforts to strengthen platform ecosystems for consumer benefit. Lastly, it advocates for a case-by-case approach in evaluating mergers in digital markets, considering market specificities and business model characteristics to avoid unwarranted presumptions. The analysis also critiques proposals to tighten merger control policies, suggesting that while addressing Type II errors is crucial, an overly interventionist approach may inadvertently increase Type I errors, thereby blocking potentially pro-competitive mergers.

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I. INTRODUCTION

The digital revolution has been transforming our daily lives in particular and the economy in general.

This revolution has been led by new market players, the so-called digital platforms (tech giants such as Google, Amazon, Facebook, Uber, or Spotify), with innovative, disruptive and flexible business models that have not only created new markets and solutions but have also challenged and transformed competition in existing markets where more traditional business models prevailed.

Importantly, the multi-sided markets in which leading tech giants operate tend to be characterized by strong network effects between the distinct groups of market participants intermediated by these platforms, on the one hand, and by increasing returns to scale, on the other, which makes them prone to concentration and winner-takes-all outcomes.²

In some instances, this concentration is the result of a high volume of acquisitions by the dominant digital platforms: collectively, the largest technology companies have acquired hundreds of firms in the last decade.³

A typical concern is then related to the assessment of the competitive effects of mergers and acquisitions in digital markets, specifically those involving “Big Tech” firms.

It should be emphasized, however, that in the context of digital markets, the analysis developed on the application of competition law, in general, and merger control, in particular, must carefully factor in both the specificities and the multi-sided nature of those markets, as well as the characteristics of the business model adopted by the online platforms involved.

As highlighted by Tirole (2019):⁴

Policymakers and regulators around the world must face the fact that the reasoning behind traditional competition measures is no longer valid. (...) Regulators, then, will need to refrain from mechanically applying traditional principles of competition policy. When it comes to multi-sided platforms, these principles simply are not applicable in many cases. New guidelines for adapting competition policy to two-sided markets would require that both sides of the market be considered together, rather than analyzed independently, as competition authorities still sometimes do. This will require care and a new analytical approach.

In this paper, I discuss three new challenges that digital markets pose with regard to determining the effect of a merger involving online platforms on competition: (i) the difficulties and particularities related to defining the relevant market; (ii) the suitability of novel theories of harm for an effective assessment of mergers in digital markets; and (iii) the alleged need to reform the criteria underlying the merger notification procedure.

More specifically, the remainder of this paper is organized as follows. Section II discusses the challenges regarding market definition in digital two-sided markets. Section III analyses suitability of the ‘killer acquisitions’ theory of harm for an effective assessment of mergers in digital markets. Section IV addresses a recent debate (and the rationale behind new proposals) on the need to revise the current notification thresholds. Finally, section 5 presents some policy implications from the analysis and concludes.

II. MARKET DEFINITION

The appraisal of whether a merger could harm competition usually begins with the definition of the relevant market, which is a fundamental point of reference for assessing market power, identifying direct competitors, and characterising barriers to entry.

² As observed by Tirole (2019), “by dint of network effects and economies of scale, the digital economy almost inexorably creates ‘natural monopolies’.” (p. 3). See also Section 2 in Jullien, B. and Sand-Zantman, W. (2021). Tirole, J., (2019), “Regulating the Disrupters,” Think Outside, ING. ING Bank N.V.. Available at: <https://think.ing.com/opinions/jean-tirole-regulating-the-disrupters>.

³ See e.g. Cabral, L. (2023), “Big Tech Acquisitions”, CEPR (London), Discussion Paper 18272. <https://cepr.org/publications/dp18272>. See also the “Investigation of Competition in Digital Markets: Majority Staff Report and Recommendations,” Subcommittee on Antitrust, Commercial, and Administrative Law of the Committee on the Judiciary of the House of Representatives, U.S. Government Publishing, July 2022, at: <https://www.govinfo.gov/content/pkg/CPRT-117HPRT47832/pdf/CPRT-117HPRT47832.pdf>.

⁴ See Tirole, J., (2019), “Regulating the Disrupters,” Think Outside, ING. ING Bank N.V.. Available at: <https://think.ing.com/opinions/jean-tirole-regulating-the-disrupters>.

In the context of the definition of relevant markets for digital platforms, however, there are at least two factors that significantly complicate the exercise.

First, these are industries with rapidly evolving business models, which makes it difficult, on the one hand, to determine the exact boundaries of the digital market and, on the other, to identify the companies that can be considered actual and potential competitors.

Second, the intrinsic features and specificities related to multi-sided platforms and (especially, cross-group) network effects must be duly taken into account when defining the relevant market(s) in which these platforms operate.

From a methodological perspective, there are three major challenges when defining markets for multi-sided platforms:⁵ (i) addressing the question concerning how many markets to define; (ii) dealing with the fact that online platforms often do not charge prices on one side of the market; and (iii) accounting for the influence of homing decisions on market delineation. Each of these issues is discussed in turn.

A. How Many Markets Should be Defined?

Given that multi-sided platforms intermediate users belonging to distinct market sides a first natural question that can be raised is whether a single market encompassing all sides of a platform should be defined or, instead, separate (but interrelated) markets for each side of a platform should be defined.

According to existing economic literature, it is crucial for analysing market definition in two-sided markets to distinguish between transaction and non-transaction platforms,⁶ since the pricing strategies available to these two types of platforms are different.

Transaction platforms are characterised by the presence and observability of a transaction between the (usually two) sides of platform users. The platform is then able not only to charge a price for joining the platform but also usage fees to their users. Examples of transaction platforms are virtual marketplaces and ride-hailing platforms.

Non-transaction platforms are, instead, characterised by the absence of a transaction between market sides and, even though there is an interaction between the distinct user groups, it is usually not observed by the platforms, implying that the platform is not able to charge a per transaction or per-interaction fee. Traditional media markets or video streaming platforms are examples of non-transaction platforms.

The suggestion of this literature is that a single market approach should be adopted in the case of platforms that compete in transaction markets, whereas in cases wherein platforms compete in non-transaction markets, a multi-market approach should be followed.⁷

In multi-sided transaction markets, an online platform sells the possibility to (find a match) and transact with another side of the market. The 'product' is then the transaction, and this is the same product offered to each side and in fixed 1:1 proportion, so that a user on one side can only transact if the corresponding user on the other market side transacts with it (i.e., consumes too). As a result, a single market encompassing membership and usage cannot fail to cover all market sides.

An important consequence of defining only one market for transaction markets is then that a firm operating in such a market will have to be on all sides of the market.

In two-side non-transaction markets, on the other hand, there is no (transaction and, hence, no) link in the usage market. In these markets, due to indirect network effects, a link between the membership markets is present and needs to be taken into account in

5 See Franck, J.-U. & Peitz, M. (2019), "Market Definition and Market Power in the Platform Economy", Centre on Regulation in Europe (CERRE). <https://cerre.eu/publications/market-definition-and-market-power-platform-economy/> and Franck, J.-U. & Peitz, M. (2021), "Market Definition in the Platform Economy", Cambridge Yearbook of European Legal Studies, Volume 23, December 2021: 91–127. <https://doi.org/10.1017/cel.2021.13>.

6 See Filistrucchi, L., Geradin, D., van Damme, E. & Affeldt, P. (2014), "Market Definition in Two-Sided Markets: Theory and Practice", Journal of Competition Law & Economics, Vol. 10, Issue 2: 293–339. <https://doi.org/10.1093/joclec/nhu007> and Filistrucchi, L. (2017), "Market Definition in Multi-Sided Markets", in: OECD, Hearing on Re-thinking the use of traditional antitrust enforcement tools in multi-sided markets, available at: [https://one.oecd.org/document/DAF/COMP/WD\(2017\)27/FINAL/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2017)27/FINAL/en/pdf).

7 In the multi-market approach, each market in each market side is analyzed separately, but taking into account the cross-group network effects through which they are linked together, which are key to correctly assess demand-side substitutability on each side of the platform.

the context of the relevant market definition, but it is not so strong as to imply the need for a single market for the purposes of market definition⁸

In practice, however, whilst the Commission has dealt with many cases involving two-sided digital platforms, it seems that in none of these cases has the Commission been explicitly involved in outlining the conditions under which a multi-market approach or a single market approach should be applied. Moreover, we have witnessed different national competition authorities adopting different market definition approaches when investigating digital mergers in the exact same sector.

For example, while the UK Competition Markets Authority (“CMA”), following the suggestion of the economics literature, in its 2017 decision on the merger between Just Eat and Hungryhouse, two online food delivery (transaction) platforms, considered a single market definition to be appropriate, the Comisión Nacional de los Mercados y la Competencia (“CNMC”), in Spain, embarked on a multi-markets approach in the merger involving *Just Eat* and *La Nevera Roja*, which was cleared in 2016. The same market definition, involving a separate market for food orders online and another for the delivery of the orders, was adopted by the CNMC in subsequent merger cases involving *Just Eat*.⁹

B. Markets With Zero Pecuniary Price

In two-sided markets, the price structure reflects the interlinked demands of the two groups of agents intermediated by a platform and the need to get both sides on board, thereby solving the well-known “chicken & egg” problem.¹⁰ This then often results in complex pricing where the price to each group of consumers does not reflect the marginal cost of supplying them.

As Armstrong (2006) highlights,¹¹ when two groups (say, 1 and 2) interact via one or more platforms, then:

[i]f a member of group 1 exerts a large positive externality on each member of group 2, then group 1 will be targeted aggressively by platforms. In broad terms, and especially in competitive markets, it is group 1's benefit to the other group that determines group 1's price, not how much group 1 benefits from the presence of group 2.

These biased (or asymmetric) pricing structures may then imply that, because of aggressive competition for consumers on one market side, those consumers end up paying zero.¹²

This being the case, and as Filistrucchi, L. (2017) emphasises, neglecting or disregarding one side of the market when defining the relevant market because that side of the market does not make a monetary payment to the platform providing the service is “conceptually wrong, (...) [as b]y failing to consider all sides in the definition of the relevant market one would then ignore the real competitive pressure faced by the firms under consideration”.¹³

Further, there are good economic reasons for why zero-pricing strategies are adopted on specific market sides.¹⁴ First, as already mentioned, zero prices are often a feature of the pricing strategy of platforms on the side of the market whose users exert a strong

8 Filistrucchi (2017) also defends that the SSNIP (Small but Significant Non-transitory Increase in Price) test, a central and well established concept for the purpose of the delimitation of the relevant market in traditional markets, can be applied in the context of two-sided platforms in an adapted form. See Filistrucchi, L. (2017), “Market Definition in Multi-Sided Markets”, in: OECD, Hearing on Re-thinking the use of traditional antitrust enforcement tools in multi-sided markets, available at: [https://one.oecd.org/document/DAF/COMP/WD\(2017\)27/FINAL/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2017)27/FINAL/en/pdf).

9 See García, J.M.G., Marino, J. & Colomo, P.I., (2020), “Competition Law and Policy in the Digital Economy: Report From Spain”, Proceedings of the XXIX FIDE Congress (The Hague, 20-23 May 2020), Available at SSRN: <https://ssrn.com/abstract=3527032>.

10 See Caillaud, B. & Jullien, B. (2003), “Chicken & Egg: Competition Among Intermediation Service Providers,” RAND Journal of Economics, Vol. 34, No. 2: 309-328. <https://doi.org/10.2307/1593720>.

11 See Armstrong, M., (2006), “Competition in Two-sided Markets,” RAND Journal of Economics, Vol. 37, No. 3: 668-691. <https://doi.org/10.1111/j.1756-2171.2006.tb00037.x>, pp. 668-669.

12 Along related lines, Tirole (2019), points out that “even small digital firms and start-ups now practice this kind of asymmetric pricing: consider, for example, free online newspapers that are funded wholly by advertising.” Tirole, J., (2019), “Regulating the Disrupters,” Think Outside, ING. ING Bank N.V.. Available at: <https://think.ing.com/opinions/jean-tirole-regulating-the-disrupters>.

13 See Filistrucchi, L. (2017), “Market Definition in Multi-Sided Markets”, in: OECD, Hearing on Re-thinking the use of traditional antitrust enforcement tools in multi-sided markets, available at: [https://one.oecd.org/document/DAF/COMP/WD\(2017\)27/FINAL/en/pdf](https://one.oecd.org/document/DAF/COMP/WD(2017)27/FINAL/en/pdf), p. 10-11.

14 See Franck, J.-U. & Peitz, M. (2019), “Market Definition and Market Power in the Platform Economy”, Centre on Regulation in Europe (CERRE). <https://cerre.eu/publications/market-definition-and-market-power-platform-economy/>.

positive cross-group effect, aiming at incentivising participation of those users, with natural positive effects on the demand of users on the other market side(s). Second, on that subsidised market side the compensation may be done, for example, through data transfers or users' attention that is monetised by the platform on other sides of the market (through advertising) and/or by enhancing the quality of service of the platform's ecosystem, thereby enhancing the platform's attractiveness for users belonging to all market sides.¹⁵ Third, in the case of virtual marketplaces, for example, the platforms often opt for charging the fees entirely to merchants, but merchants may then subsequently decide to pass on (at least part of) those fees to end consumers in terms of higher final prices for the provided goods and services.

C. Market Delineation and Homing Decisions

In the context of multi-sided markets it is also very important to take into consideration the degree of multi- and single-homing by platform users for market definition purposes.¹⁶

Importantly, the degree of multi-homing on one market side often depends on homing decisions on the other market side. For instance, if all agents on one market side single-home, this creates incentives for agents on the other market side to multi-home.

Further, if, for example, single-homing on a given market side is enforced through exclusive agreements between platforms and agents belonging to that specific market side, then the services provided by platforms to the group of users on this (single-homing) side are close substitutes and belong to the same market.¹⁷

Relatedly, there many situations wherein users on one side join only one platform (single home) whereas users on the other market side join more than one platform (multi home). When this is the case, platforms represent bottlenecks:¹⁸ users on the multi-homing side can only reach single-homing users by joining the platform that grants exclusive access to those single-homing users.¹⁹

In addition, and as pointed out by Franck & Peitz (2019) with regards to market definition in the context of this "competitive bottleneck" scenario:

The degree of multi-homing on one side is not only relevant for the substitutability between platform services in this market but also for the substitutability in the market for platform services on the other side. If users on one side of the platform multi-home, while users on the other side of the platform single-home, it is appropriate to define a monopoly market on the multi-homing side as the platform is the unique access provider to its single-homing users on the other side – here the platform can be seen as the gatekeeper to its single-homing users.²⁰

This then suggests that one market for each platform in regard to the service which is provided to the multi-homing side can be defined. In sum, it is essential to identify homing patterns (and their evolution) on both sides of the market in the context of defining the relevant markets for multi-sided platforms.

15 For instance, by collecting and aggregating users' personal data, an online platform may be able to design a more efficient supply of personalized services, say by offering digital services tailored to the users' needs, tastes and preferences. By so doing, the platform will be able to design an ecosystem more aligned with the dimensions preferred by actual and potential users, meaning that all users will be attracted by its improved network quality.

16 An economic agent single homes if she uses only one platform in a particular industry and multi-homes if she uses several (i.e., consumes multiple offerings).

17 See Franck, J.-U. & Peitz, M. (2021), "Market Definition in the Platform Economy", Cambridge Yearbook of European Legal Studies, Volume 23, December 2021: 91–127. <https://doi.org/10.1017/cel.2021.13>, section 3.

18 See e.g. OECD (2018), "Rethinking Antitrust Tools for Multi-Sided Platforms," OECD, Paris, available at: <https://www.oecd.org/daf/competition/Rethinking-anti-trust-tools-for-multi-sided-platforms-2018.pdf>.

19 See Dryden, Padilla and Vasconcelos (2021) for a discussion of the likely competitive effects of single-homing in the context of virtual marketplaces. Dryden, N., Padilla, J. & Vasconcelos, H. (2021) "On the Competitive effects of single-homing: the case of hybrid marketplaces", Competition Policy International Antitrust Chronicle, February 2021. <https://www.pymnts.com/cpi-posts/on-the-competitive-effects-of-single-homing-the-case-of-hybrid-marketplaces/>.

20 See Franck, J.-U. & Peitz, M. (2019), "Market Definition and Market Power in the Platform Economy", Centre on Regulation in Europe (CERRE). <https://cerre.eu/publications/market-definition-and-market-power-platform-economy/>, page 7.

III. THE "KILLER ACQUISITIONS" NEW THEORY OF HARM

Following the growing concerns about the acquisition strategies of large technology platforms, a relatively recent debate has been focused on whether anti-competitive transactions in the digital world are not covered by existing theories of harm for merger review, thus calling for the development of new ones.²¹

At the heart of such discussions is the so-called 'killer acquisitions' theory of harm, according to which an established platform strategically embarks on the acquisition of smaller rivals with the aim of discontinuing their operations, thereby eliminating the competitive pressure exerted by new entrants and/or potential market disruptors and consolidating its already strong market position.

As Cunningham, Ederer and Ma (2021) argue in a seminal paper on the topic, if there is a high degree of substitutability between the products and services offered by the small target company and those of the acquiring company, then these acquisitions can represent a means of avoiding profit cannibalisation.²²

Further, to the extent that they limit ongoing innovation and the expansion of nascent firms, these transactions may reduce market contestability, reinforce market power of incumbent platforms, and hurt consumer welfare.

As Tirole (2019) puts it:²³

If a newcomer has a single original product that is better than what the incumbent offers, the incumbent might want to block it from gaining even a partial foothold in the market. The incumbent will do so not to improve its short-term profits, but to prevent the newcomer from later competing in areas where the incumbent occupies a monopoly position, or to stop the newcomer from allying with the dominant firm's competitors.

While not disputing that this is a legitimate concern, as it is possible that such an acquisition may be motivated by neutralising the expansion of an emerging and/or promising competitor, whose technology, if properly developed, could potentially displace that of the incumbent,²⁴ my claim is that this type of mergers (through which a dominant digital platform acquires a smaller actual or potential rival) needs not undermine competition and, more specifically, that the corresponding final induced competitive effects are bound to depend on the motives and rationale behind the transaction.

Indeed, it cannot simply be presumed that all acquisitions of emerging start-ups by large digital platforms are necessarily anti-competitive and solely contribute to reinforcing the dominant position of the established technology platforms in their respective markets.

In fact, a number of observations are in order concerning the suitability of the 'killer acquisitions' theory of harm for an effective assessment of mergers involving nascent firms in digital markets. These observations relate to the central implicit assumptions on which this theory is grounded.

Firstly, if there is indeed a problem of start-ups being acquired by dominant digital platforms, this means that entry into these markets is frequent and that the markets in question are in fact contestable. This then calls into question the assumption that the large incumbents have lasting market power and are able to close off market entry through pre-emptive mergers.

It turns out that digital platforms are often particularly exposed to the competitive pressure exerted by other competitors, either actual or potential. Using the words of Jullien & Sand-Zantman (2021):²⁵

21 See OECD (2023), "Theories of Harm for Digital Mergers", OECD Competition Policy Roundtable Background Note. www.oecd.org/daf/competition/theories-of-harm-for-digital-mergers-2023.pdf.

22 Cunningham, C., Ederer, F. & Ma, S. (2021), "Killer Acquisitions", *Journal of Political Economy* 129(3): 649-702. <https://doi.org/10.1086/712506>.

23 See Tirole, J., (2019), "Regulating the Disrupters," *Think Outside, ING*. ING Bank N.V.. Available at: <https://think.ing.com/opinions/jean-tirole-regulating-the-disrupters>.

24 See Katz, M. (2021), "Big Tech Mergers: Innovation, Competition for the Market, and the Acquisition of Emerging Competitors," *Information Economics and Policy*, vol. 54: 1-17. <https://doi.org/10.1016/j.infoecopol.2020.100883>.

25 See Jullien, B. & Sand-Zantman, W. (2021), "The Economics of Platforms: A Theory Guide for Competition Policy," *Information Economics and Policy*, Volume 54, March 2021, 100880. <https://doi.org/10.1016/j.infoecopol.2020.100880>.

[W]e should point out that tipping in digital markets may not resemble a natural monopoly as encountered in infrastructure markets. Large heterogeneity and low entry cost imply that while there may not be room for two large platforms, there are usually niche opportunities for small platforms, which may have the potential to challenge the incumbent.

Secondly, in order for the ‘killer acquisitions’ theory of harm to be convincing and coherent, one has to establish that the acquired company is indeed a potential competitor of the acquirer in the market in which the acquirer currently operates. However, the digital space involves industries dominated by uncertainty, where it is often very difficult to predict the evolution of business models and market positions.²⁶ In addition, pre-emptive actions are difficult to pursue because, as explained in the previous section, in the digital space there are major difficulties in defining the market and identifying potential rivals.

Thirdly, while it is true that the acquirer may decide not to continue developing the target firm’s innovative technology, thus shelving its products and services, it may well happen that the acquirer decides to reposition the acquired products. This is likely to be the case in situations where there are important complementarities between the internal R&D projects and the productive assets of both companies. In such cases, the acquisition may allow the products or services in the target company’s portfolio to be developed more quickly and to be relaunched on the market thanks to fostered innovation.

It is therefore very important to understand, from a forward-looking perspective: (i) whether the acquiring platform has the incentives to shelve the target’s product(s) or not; and (ii) what the final effect on consumer welfare will be. If the acquiring platform shelves the target company’s products, the merger is likely to be negative from the point of view of consumers. However, if there is a product repositioning as a result of the merger, then consumers may end up better off with the merger: there will be less price competition between the acquirer’s product and the target’s repositioned product, but the merger will enable consumers to benefit from access to improved and differentiated products.

Finally, the prospect of such acquisitions is a powerful incentive for start-ups to innovate, which in turn implies that beliefs about the degree of intervention by competition authorities in merger cases involving large digital platforms have a decisive influence on small firms’ incentives to innovate in the first place.

In particular, as Crémer, de Montjoye & Schweitzer (2019) acknowledge, a stringent merger policy risks hampering the innovation efforts and financing possibilities of startups:²⁷

In many cases, such acquisitions [of small, but successful start-ups with a quickly-growing user base and significant competitive potential by dominant platforms] will be pro-competitive. Generally speaking, the search for the optimal boundaries of the firm – whether by way of internal or external growth – is an important part of the competitive process. In the digital field, mergers between established firms and start-ups may frequently bring about substantial synergies and efficiencies: while the start-up may contribute innovative ideas, products and services, the established firm may possess the skills, assets and financial resources needed to further deploy those products and commercialise them. Simultaneously, the chance for start-ups to be acquired by larger companies is an important element of venture capital markets: it is among the main exit routes for investors and it provides an incentive for the private financing of high-risk innovation.

So, it is imperative to understand, once again prospectively, whether a proposed merger will foreclose the market through the acquisition of promising and emerging players before they become viable competitors or whether, on the contrary, it will motivate the acquirer to exploit complementarities and synergies resulting from the combination of R&D projects and other key productive assets, possibly triggering new entry by other nascent firms which are incentivised to create innovative product portfolios in the hope of (also) being acquired.²⁸

26 See Cabral, L. (2021), “Merger policy in digital industries”, Information Economics and Policy, Volume 54, March 2021, 100866. <https://doi.org/10.1016/j.infoecopol.2020.100866>.

Caillaud, B. & Jullien, B. (2003), “Chicken & Egg: Competition Among Intermediation Service Providers,” RAND Journal of Economics, Vol. 34, No. 2: 309-328. <https://doi.org/10.2307/1593720>.

27 Crémer, J., de Montjoye, Y.-A. & Schweitzer, H. (2019), “Competition Policy for the Digital Era”, Final Report, European Commission, Directorate-General for Competition. <https://op.europa.eu/en/publication-detail/-/publication/21dc175c-7b76-11e9-9f05-01aa75ed71a1/language-en>, page 111.

28 This is the so-called innovation-for-buyout (or innovation for sale) strategy (see e.g., Cabral (2021)), which, if successful, allows new entrants to appropriate part of the incumbent platform’s profits. Cabral, L. (2021), “Merger policy in digital industries”, Information Economics and Policy, Volume 54, March 2021, 100866. <https://doi.org/10.1016/j.infoecopol.2020.100866>.

It is therefore impossible to formulate a one-size-fits-all policy for this problem. The question of whether competition authorities should prohibit a dominant online platform from merging with a small, emerging target company that allegedly operates (or is about to enter) in the same relevant market(s) will depend on the motive and rationale behind the operation. Ultimately, the only valid way to ensure productive competition in the digital sector is to approach these operations on a case-by-case basis, avoiding per se rules and presumptions regarding the likely competitive or anti-competitive effects of this type of transactions.

IV. ON THE ADEQUACY OF INTRODUCING ADDITIONAL NOTIFICATION CRITERIA

The issue of merger notification thresholds has recently gained a lot of attention precisely because of concerns about 'killer acquisitions': the acquisition of small firms that have the potential to become strong future competitors may not be investigated by antitrust agencies if the target companies involved have relatively small market shares and revenues.²⁹

While there may be room for concern about the risk of pre-emptive mergers escaping scrutiny, before reaching final conclusions on the alleged need to review merger control instruments such as notification thresholds, more research is needed to understand the welfare implications of mergers involving acquisitions of nascent firms by dominant digital platforms.

As already mentioned, these mergers can effectively result in new, improved and differentiated products that reach end consumers thanks to product repositioning carried out by the acquiring digital platform. Furthermore, banning such mergers could have significant adverse effects on small companies' incentives to innovate in the first place.

Still, concerned about the risk of insufficient enforcement, Germany and Austria have broadened their notification criteria by introducing thresholds for the value of transactions, with the aim of preventing large technology platforms from bypassing merger control by acquiring successful start-ups at a very early stage.

Although the logic of these reforms is understandable - to give competition authorities the opportunity to expand the spectrum of the digital mergers they analyse - it is not at all obvious that this is the way to proceed.

Firstly, the current thresholds are based on indicators that are fixed and cannot be manipulated at the time of the submission process. Instead, the value thresholds are a financial measure determined within the framework of the merger negotiation process. Thus, firms may be able to circumvent the thresholds based on the value of the transaction by adjusting the menu of payments so as to avoid being scrutinised.

An alternative could be not to extend the current notification criteria, but to apply them differently to distinct groups of industries. For example, stricter rules based on the current criteria (i.e., the same market share and turnover criteria, but considering lower thresholds) could be applied to R&D-intensive industries, and these industries could be identified in advance on the basis of indicators such as those proposed by Sutton (1998).³⁰

Secondly, this move towards a more interventionist approach is not substantiated by solid empirical evidence that unscrutinised transactions have turned out to be harmful or problematic.³¹

On the contrary, recent empirical research finds no evidence on the 'killer acquisitions' theory of harm. More specifically, Ivaldi, Petit & Unekbas (2023) examine the acquisitions made by large technology firms in ICT industries which were screened by the European Commission and find that acquired products are often not killed but scaled, post-merger industry output demonstrably increases, and the relevant markets remain dynamic post-transaction. Their findings therefore cast doubt on the current calls for a strengthening of merger control policies in digital markets.³²

29 In the current scenario, concentrations are notifiable, and therefore subject to the scrutiny of competition agencies, if they meet a set of legally established notification thresholds that combine market shares and turnover.

30 See Sutton, J. (1998), *Technology and Market Structure*, MIT press, Cambridge MA. See also Scherer, F.M. (2000), "Professor Sutton's 'Technology and Market Structure'", *The Journal of Industrial Economics*, Vol. 48, No. 2 (June 2000): 215-223. <https://doi.org/10.1111/1467-6451.00120>.

31 It should be noted that the data provided in the pioneering work by Cunningham, Ederer and Ma (2021) is limited to acquisitions in the pharmaceutical industry and suggests that killer acquisitions are, in practice, a rare phenomenon.

32 See Ivaldi, M., Petit, N. & Unekbas, S. (2023), "Killer Acquisitions: Evidence from EC Merger Cases in Digital Industries", TSE Working Paper, n. 23-1420, March 2023. <https://www.tse-fr.eu/publications/killer-acquisitions-evidence-ec-merger-cases-digital-industries>.

Finally, these calls for a more interventionist approach to merger control in digital markets can lead to problems of overshooting. Furthermore, and perhaps more importantly, they may have the effect of increasing error costs, given the difficulties in distinguishing between beneficial and harmful acquisitions. In particular, it is likely that a more restrictive merger policy, while diminishing Type II errors (mistakenly permitting, explicitly or implicitly, anticompetitive transactions), will substantially increase Type I errors (mistakenly prohibiting pro-competitive mergers). However, arguably, the cost of type II errors is likely to be lower, since these errors can be mitigated by market forces or by ex post antitrust interventions, for example, through the investigation of abuses of dominant position.

Along related lines, Cabral (2021) stresses that, ultimately, competition authorities face a trade-off between false positives (blocking a merger that didn't really have a pre-emption motive) and false negatives (allowing a merger that did have a pre-emption motivation), arguing that in the digital sphere false positives are relatively more likely than false negatives.

Consequently, given all the uncertainties involved, it seems recommendable for competition authorities to be cautious before adjusting the set of screening tools available for merger control with a view to adopting a more interventionist approach in digital markets.

Given the dynamic markets in which digital platforms operate, with rapidly changing technologies and constantly evolving business models, practitioners should probably only adjust the notification criteria once they have accumulated sufficient knowledge and experience through a learning-by-doing process.

This may therefore be a good time to focus on the ex-post evaluation of both enforcement and non-enforcement decisions. If a particular intervention is being addressed, then such evaluation should consist of investigating whether the corresponding objectives were fulfilled or not. If, instead, the ex-post evaluation concerns the implications of a merger that ended up not being scrutinised (a non-enforcement decision), then the aim should be to try to understand what would have happened if there had been an intervention.³³

In doing so, competition agencies would not only be able to promote accountability (for example, by contributing to performance reporting), but also to assess the effectiveness of the prediction techniques used in the merger analysis process. Such evaluations are especially important in dynamic markets because of the difficulty of identifying the right counterfactual to test against, and also because non-price effects are usually very relevant in these markets. For the latter reason, qualitative methodologies should also be incorporated into these ex-post evaluations.

V. CONCLUSION

Mergers in digital markets have been the subject of intense debate in recent years, especially with regard to the possible need to adjust the analytical framework and policy instruments used in the context of merger decisions in order to take due account of the unique and complex features of online platforms.

This paper contributes to this debate by discussing three important challenges that digital markets pose when it comes to determining the potential impact of mergers involving large technology platforms on competition conditions: (i) the difficulties relating to market definition; (ii) the suitability of the new 'killer acquisitions' theory of harm for an effective assessment of mergers in the digital space; and (iii) the alleged need to adjust notification thresholds in order to increase the likelihood that pre-emptive mergers will be subject to antitrust scrutiny.

Market definition is a fundamental starting point for both the assessment of market power and the identification of actual and potential competitors. Yet, in the context of digital markets there are two factors that substantially complicate the task of correctly identifying the exact boundaries of the relevant market(s): the rapidly evolving business models and the intrinsic characteristics of the multilateral platforms operating in these markets.

Fortunately, however, the extant economic theory provides important guidance on how methodologies and tools used for defining relevant one-sided markets can be adjusted and complemented in order to correctly define the relevant markets in which multi-sided online platforms operate. In particular, this theory underlines that incorporating cross-group network effects into the definition of relevant markets for multi-sided platforms, despite introducing additional complexities and information requirements, is fundamental to better frame the competitive environment and to identify the competitors directly affected by a concentration in digital markets.

³³ Along these lines, in 2020-21, the Federal Trade Commission (FTC) conducted an inquiry into past acquisitions by the largest technology platforms' that did not require reporting to U.S. antitrust authorities. The aim of this initiative was to evaluate whether the federal agencies were getting adequate notice of transactions that might harm competition. See e.g. <https://www.ftc.gov/news-events/news/press-releases/2020/02/ftc-examine-past-acquisitions-large-technology-companies>.

In what concerns the suitability of the ‘killer acquisitions’ theory of harm, while not disputing that there is a risk that pre-emptive mergers, motivated by the prospect of neutralising future competition, are a legitimate concern, this paper argues that it cannot simply be assumed that all acquisitions of start-ups by large digital platforms are necessarily anti-competitive.

In fact, a fundamental aspect that needs to be addressed with regard to the competitive effects of such mergers is the motive and rationale behind the operation. In particular, competition agencies should investigate, from a forward-looking perspective, whether in the transaction under analysis the acquirer intends to delay or discontinue the target company’s product and ongoing R&D projects or whether, on the contrary, it intends to embark on a repositioning of the product, exploiting synergies and complementarities between the R&D projects and productive assets of both companies, thereby strengthening the platform ecosystem and, at the same time, allowing end consumers to benefit from access to a richer portfolio of improved and differentiated products and services.

This being the case, our analysis suggests that the only sensible way of approaching mergers in digital markets is a case-by-case approach, which takes into account the specificities of those markets as well as the characteristics of the business models adopted by the on-line platforms involved, thereby avoiding the establishment of presumptions or per se rules concerning the likely competitive effects of mergers involving big tech online platforms.

Finally, with regard to contemporary calls to tighten merger control policies by expanding merger notification criteria, the preceding analysis, apart from casting some doubt on the effectiveness of introducing additional criteria linked to the value of the merger, as has been done in Germany and Austria, emphasises that such a move towards a more interventionist approach could result in overshooting problems and could also have the effect of increasing error costs in the context of merger enforcement.

More specifically, it is argued that this proposal to tighten the screening indicators used in merger control in the digital space, while diminishing Type II errors (mistakenly giving green light to anticompetitive transactions), will most likely substantially increase Type I errors (mistakenly blocking pro-competitive mergers), although the cost of Type II errors is arguably lower, since this type of errors can be mitigated by market forces and by ex-post antitrust interventions (for example, checking for abuses of dominant position).



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