



cerre

Centre on Regulation in Europe

ISSUE PAPER

February 2020

Marc Bourreau
Alexandre de Stree

BIG TECH ACQUISITIONS

COMPETITION & INNOVATION EFFECTS AND EU MERGER CONTROL



The event, for which this Issue Paper has been prepared, has received the support and/or input of the following CERRE members: Facebook, Microsoft and Vodafone. As provided for in CERRE's by-laws, this Issue Paper has been prepared in strict academic independence. At all times during the development process, the authors, the Joint Academic Directors and the Director General remain the sole decision-makers concerning all content in the Paper.

The views expressed in this CERRE report are attributable only to the authors in a personal capacity and not to any institution with which they are associated. In addition, they do not necessarily correspond either to those of CERRE, or to any sponsor or to members of CERRE.

© Copyright 2020, Centre on Regulation in Europe (CERRE)

info@cerre.eu

www.cerre.eu



Table of content

- 1. Introduction 3**

- 2. Effects of big tech mergers on competition and innovation 7**
 - 2.1. The effects of acquisitions on potential competition 8**
 - 2.2. The effects of acquisitions on innovation 9**
 - 2.2.1. The effects on innovative entry 9
 - 2.2.2. The effects on the development of the entrant’s innovation10
 - 2.2.3. The effects on the directions of R&D11
 - 2.2.4. Merger and innovation12
 - 2.3. Summary13**

- 3. EU merger control..... 13**
 - 3.1. Notification threshold15**
 - 3.2. Theories of harm16**
 - 3.2.1. Horizontal and conglomerate effects16
 - 3.2.2. Innovation theory of harm.....17
 - 3.2.3. Efficiency defence18
 - 3.3. Antitrust decision under uncertainty19**
 - 3.3.1. Standard of proof19
 - 3.3.2. Burden of proof.....20
 - 3.3.3. Reversibility of decisions and remedies21

About CERRE

Providing top quality studies and dissemination activities, the Centre on Regulation in Europe (CERRE) promotes robust and consistent regulation in Europe's network and digital industries. CERRE's members are regulatory authorities and operators in those industries as well as universities.

CERRE's added value is based on:

- its original, multidisciplinary and cross-sector approach;
- the widely acknowledged academic credentials and policy experience of its team and associated staff members;
- its scientific independence and impartiality;
- the direct relevance and timeliness of its contributions to the policy and regulatory development process applicable to network industries and the markets for their services.

CERRE's activities include contributions to the development of norms, standards and policy recommendations related to the regulation of service providers, to the specification of market rules and to improvements in the management of infrastructure in a changing political, economic, technological and social environment. CERRE's work also aims at clarifying the respective roles of market operators, governments and regulatory authorities, as well as at strengthening the expertise of the latter, since in many Member States, regulators are part of a relatively recent profession.

About the authors



Marc Bourreau is a Joint Academic Director of CERRE and Professor of Economics at Telecom Paris. He is also affiliated to the CNRS interdisciplinary institute for innovation (i3) for his research. His main research interests lie in industrial economics, regulation and telecommunications. His current research projects concern the impact of competition and regulation on investment in the telecoms industry, licensing and trading of standard essential patents, the impact of digitisation in the music industry, and the economics of digital platforms.



Alexandre de Stree is a Joint Academic Director of CERRE and Professor of European Law at the universities of Namur and Louvain. He is also the Director of the Research Centre for Information, Law and Society (CRIDS). Professor de Stree regularly advises international organisations and national regulatory authorities on regulatory and competition issues in network industries. He holds a Ph.D. in Law from the European University Institute.

01

INTRODUCTION



1. Introduction

Over recent years, we have observed a **wave of mergers and acquisitions in the digital economy**. Some flagship mergers have made headlines. For example, Facebook acquired WhatsApp for \$19bn in 2014, Google took control of Motorola Mobility in the same year for \$12.5bn, and Microsoft bought LinkedIn for \$26bn in 2016.¹ In parallel to these large operations, the so-called 'big tech' companies also buy many successful or promising start-ups on a very large scale. For example, for the year 2017 alone, Alphabet, Amazon, Apple, Facebook and Microsoft spent a total of \$31.6bn on acquisitions of start-ups.² Over the period 2001-2018, Google alone has been buying an average of one firm per month, every month.³ As a whole, Gautier and Lamesch (2020) count (and analyse) 175 acquisitions made by the five leading US digital firms Alphabet, Amazon, Apple, Facebook and Microsoft during 2015-2017.⁴

Most of those mergers were not reviewed by the European Commission or the national competition authorities as they were below the notification thresholds, and the few which were reviewed were in general authorised without conditions. With the benefit of hindsight and a better understanding of the competitive forces in the digital economy, a 2-fold debate is emerging among antitrust agencies and academics. This debate centres first on whether more big tech acquisitions should be reviewed by the agencies and, secondly, on whether additional or different theories of harm and proof should be developed.

Given the importance of innovation in the digital economy, this debate is part of a broader debate on competition policy and innovation which has also developed in other sectors, in particular the pharmaceutical industry. However, when studying the acquisitions of big tech firms, it is important to take into account the specific characteristics of competition and the different types of innovation in the digital economy.

The **characteristics of the digital economy** are many and different across business models and digital platforms, but we can identify at least four traits that are key and common to most digital platforms:

- *conglomerate concentration* due to massive network effects and market linkages within ecosystems;
- reliance on *customer attention and data* which are often monetised with advertisers through complex value chains;
- *rapid market evolution and a high level of innovation* due to rapid technological progress and based on a small set of capabilities (mainly data, computing power, skills and risky and patient capital);
- and *uncertainty* and unpredictability, as innovation is often disruptive.

This leads us to the **different types of innovations** (de Streeck and Larouche, 2015; Gans, 2016)

- **Incremental and breakthrough** refer to *technological processes*, and qualify the innovation with respect to the prior state of the art: an *incremental innovation* marks a small step forward (typically the improvement of a feature or characteristic of a technological paradigm), whereas a *breakthrough innovation* involves a significant technological jump (akin to a change of technological paradigm). For instance, adding slow motion or stop image

¹ For a list of mergers and acquisitions by Facebook, Google and Microsoft, see https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Facebook, https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Alphabet, and https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Microsoft, respectively.

² *The Economist*, 26/10/2018, "American tech giants are making life tough for startups".

³ https://en.wikipedia.org/wiki/List_of_mergers_and_acquisitions_by_Alphabet.

⁴ Motta and Peitz (2020) also note that Alphabet is reported to have made 48 acquisitions, Amazon 42, Apple 33, Facebook 21 and Microsoft 53.



capacities to a VCR is an incremental innovation; replacing VCRs with DVDs is a breakthrough innovation.

- In contrast, **sustaining and disruptive** refer not to technological progress, but to the relationship between the innovation and the *value network* around it: a sustaining innovation takes place within the value network, whereas a disruptive innovation comes from outside of the value network and displaces it. To continue with the example given above, the replacement of the VCR by the DVD and later by Blu-ray can be considered as sustaining innovations, whereby the quality of domestic video recording and viewing devices has gradually improved. By contrast, video streaming has the features of a disruptive innovation. We can indeed observe that the value network has shifted, with streaming being central and DVD/Blu-ray becoming a niche market.

With those characteristics of the digital economy and the typology of innovations in mind, this Paper outlines the main issues raised by the effects of big tech acquisitions on innovation and competition. It is based on a review of the industrial economic literature, the recent policy reports adopted or commissioned by competition authorities and EU case law.

This paper is brief and mainly aims to outline the issues, without developing precise or concrete policy recommendations, and is structured as follows. After this introduction, Section 2 reviews the main economic theories which analyse the effects of big tech acquisition. Then, Section 3 discusses the implications of those theories on EU merger control, in particular regarding the notification threshold, the theories of harm and the standard and burden of proof.

02

**EFFECTS OF BIG TECH MERGERS
ON COMPETITION AND INNOVATION**



2. Effects of big tech mergers on competition and innovation

In this section, we review the economic theories on the effects of acquisitions on competition and innovation. The acquisition of start-ups by big tech firms can affect market outcomes, negatively or positively, through two channels: the level of competition in product markets, and innovation incentives. We discuss these two possible effects in turn.

2.1. The effects of acquisitions on potential competition

A clear negative effect of acquisitions is that they can eliminate potential competition. To understand when it can happen, consider a market where a dominant firm faces the possible entry of a new competitor. **Facing the threat of more intense competition, the incumbent firm may have an incentive to buy out the potential rival to protect its dominant position.** There is such an incentive if the incumbent gains more from maintaining its dominant position through the acquisition of the rival than the competitor can earn from entering the market. If the incumbent has market power, this condition usually holds. For example, if each firm offers only one product and, *ex-ante*, the incumbent is a monopolist, it simply means that the monopoly firm makes more profit operating the two products than two rival firms. This condition is known as the “*efficiency effect*” in industrial organisation (Tirole, 1988), with the idea that competition destroys industry profits. The acquisition (pre-emption) of potential rivals leads to the persistence of the dominant position by the incumbent firm, as it buys out potential rivals (Gilbert and Newbery, 1982). The acquisition of entrants by a dominant firm can thus harm competition in the market, by eliminating potential competitors, which is detrimental to consumers.

The pre-emption of rivals can only be a motive for acquisition **if the potential entrant represents a significant competitive threat** for the incumbent.⁵ It may not always be the case. The new venture can offer unrelated products or services or complements to the incumbents’ products and services, in which case the incumbents’ profits from its existing operations are not threatened by entry. For example, Argentesi et al. (2019) analyse the characteristics of 300 acquisitions made by Amazon, Facebook, and Google in the period 2008 to 2018 and conclude that in most cases, the products and services of the acquired companies were complementary to those of the acquirers. The entrant could even plan to launch a substitute product or service, but without having the necessary resources to develop it – in which case it hardly represents a threat for the incumbent. More generally, Cabral (2019) argues that in the digital sector, you “*rarely know where the next attack will come from,*” and therefore, the probability that a given entrant represents an effective threat might be low.

If the new venture does not represent any significant competitive threat for the incumbent, we may still observe acquisitions, but for motives other than pre-emption. For example, the literature in strategic management argues that an innovator faces a trade-off between developing its innovation on its own and selling it to an incumbent firm (Teece, 1986). Indeed, there might be **complementarities between the start-up and the incumbent**, which may make a technology transfer the most profitable option for both firms. For example, the start-up may bring innovative new ideas and skills, while the incumbent can provide the necessary resources (e.g., in terms of funding) to develop and market the innovation successfully. If the incumbent has control over critical complementary assets, the innovator may prefer selling its innovation rather than entering the market directly (Gans and Stern, 2003).

In the digital sector, **the inputs that the entrant may bring to the incumbent** are, for example, new technologies, talented engineers, or a customer base that can be redeployed within the acquiring firm. If the markets for inputs do not work properly (e.g., due to high transaction costs for technology transfers or frictions in the labour market), acquiring a start-up may represent the less costly solution to obtain these inputs.

⁵ See, e.g., Cabral (2019) for a formal elaboration on this point.



Yet, in a recent paper, Ng and Stuart (2019) suggest that **hiring talent through the acquisition of start-ups (“acquihires”)** may not be an effective way to recruit. Using a large-scale dataset on millions of workers in the US and M&As in the high-tech sector, they show that employees that join a new company via acquisition are far more likely to change employer after the acquisition, compared to a control group of organically hired employees. The post-acquisition turnover is also particularly strong among highly-educated, high-ranked employees.

*In sum, acquisitions may have **negative effects** on competition by allowing the acquirer to **eliminate competition** through the acquisition of high-potential rivals which represent a threat.*

*Acquisitions can also have **positive effects** by facilitating an **efficient transfer of inputs and innovation capabilities**, such as technology or talent, between the acquirer and the acquired firm, and thereby accelerate the development of innovations.*

2.2. The effects of acquisitions on innovation

Besides their effects on competition, the acquisition of start-ups by incumbents can also affect innovation. First, acquisitions may stimulate innovative entry. Second, they may influence, positively or negatively, the development of innovations by start-ups. Third, and finally, in anticipation of a possible buyout, new ventures can have an incentive to orient their research and development in directions that maximise their acquisition value rather than the value of their products. We discuss these three possible effects of acquisitions on innovation below.

2.2.1. The effects on innovative entry

When a potential entrant represents a competitive threat for an incumbent firm, we have argued above that the incumbent has more incentive to acquire the entrant and eliminate the competition than the entrant has to enter. If the incumbent acquires the entrant, the latter is going to negotiate a price for the takeover. This price should at least compensate the entrant for the profit it would have obtained by entering directly. We can argue that the entrant could even claim a higher price, corresponding to a share of the incumbent’s profit after the acquisition.⁶ Thus, since the takeover price will typically be larger than the expected profit from entry, the entrant has stronger incentives to enter the market if it anticipates that it will be bought out by an incumbent firm than in a counterfactual situation where acquisitions would not be possible or allowed (Rasmusen, 1988).⁷ Therefore, the **prospect of possibly being acquired makes it more likely that innovation by entrants emerges in the first place.**

Note, however, that since entry for buyout stimulates entry, **inefficient entry can also occur.** For example, new ventures could be tempted to enter with a close substitute to the incumbent’s products or services, creating little value for the consumers, while incurring (inefficient) costs to enter the market.

In the **digital sector**, where entry costs seem moderate, we contend that **the entry-encouragement effect of acquisitions is probably stronger** than in other industries, where innovative entry implies high sunk costs. However, Kamepalli, Rajan and Zingales (2019) propose a **model which challenges, to a certain extent, the idea** that the expectation of being bought out increases incentives to enter. In their model, if consumers expect a new platform to be acquired eventually by an incumbent platform and have switching costs, they are reluctant to adopt the new platform. If few users are likely to switch to the new platform, this limits the amount that the new platform can obtain when bought out by the incumbent. The authors then argue that antitrust can help. Blocking mergers between incumbent and entrant platforms allows the latter to commit to

⁶ For example, if we use the so-called Nash bargaining solution, the entrant obtains half of the incumbent’s post-acquisition profit. See Cabral (2019).

⁷ Mason and Weeds (2013) make the same point in the context of mergers: the possibility of exit-by-merger stimulates entry. Rasmusen (1988) also shows that entry for buyout reduces the credibility of entry deterrence strategies because, in case of entry, the incumbent is better off acquiring its rival.

remaining independent, which incentivises consumers to switch. However, in their model, the entrant did not represent any significant competitive threat for the incumbent, and therefore, the incentive to pre-empt the rival is weak.

*In sum, to some extent, **the possibility of being acquired after entry stimulates innovative entry**, and therefore, encourages firms to innovate in the first place.*

One downside is that it could also lead to inefficient, opportunistic entry for buyout.

2.2.2. The effects on the development of the entrant's innovation

After an acquisition, what should the acquirer do with the entrant's innovation? Should it terminate the project or should it rather devote resources to develop the innovation? We argue below that both incentives could be at play.

(i) Killing innovation

After an acquisition, one significant concern is that the acquiring firm could decide to kill the innovation of the acquired firm instead of developing it.

To understand the **incumbent's incentive to kill the acquired firm's innovation**, let us assume that the entrant has an incentive to develop its innovation if it enters the market (i.e., it represents a competitive threat for the incumbent). The incumbent may have, by contrast, no incentive to develop this innovation. This is due to the so-called "**replacement effect**" (Arrow, 1962): whereas the entrant's gain from developing the innovation is the profit it can obtain in case of entry, for the incumbent, this gain corresponds to the difference in profits if it develops the innovation and if it does not and keeps operating its existing products or services. If the innovation is a close substitute to its products or services, the incumbent has little incentive to develop it, because the incremental profit gains will be small due to cannibalisation. In such a case, the incumbent may acquire the innovating entrant to eliminate potential competition and shelve the innovation (Gilbert and Newbery, 1982). Thus, the acquisition has two anti-competitive effects: competition is reduced and innovation harmed.⁸

A recent paper by Cunningham et al. (2018) provides **empirical evidence of "killer acquisitions" in the pharmaceutical sector**. Using data on 35,000 drug projects conducted by more than 6,700 pharmaceutical companies in the past 25 years, they find evidence that acquiring firms terminate projects that overlap with their existing products. When this is the case, a project is 39.6% less likely to be continued after the acquisition compared to drugs that are not acquired, controlling for various factors that can also influence the decision to continue the project. Overall, they estimate that 6.4% of acquisitions are killer acquisitions.

There are, of course, significant **differences between the pharmaceutical sector and the digital sector** (e.g., the presence of strong network effects in the latter sector). Gautier and Lamesch (2020) offer a descriptive analysis of 175 acquisitions made by big tech firms (Google, Amazon, Facebook, and Microsoft) over the period 2015-2017. They argue that most acquisitions are not "killer acquisitions." They further claim that while most of the acquired products are shut down, the underlying technology is integrated into the firms' ecosystems.

(ii) Developing innovation

Gautier and Lamesch (2020) suggest that acquiring companies in the digital sector have incentives to develop innovations from acquired firms. In light of our discussion above on the "replacement effect", it is important to note that it might not always be at play. In other words, the **incumbent may have more incentives to develop the innovation than the potential entrant**. For example, the incumbent may have a large customer base or benefit from strong network effects,

⁸ See Motta and Peitz (2020) for a model that takes into account both the incentives to develop the acquired innovation and the incentives to acquire the potential entrant.



which would lead to broader adoption if it develops the innovation than if it is the entrant. In the presence of strong synergies on the supply-side or on the demand-side, the incumbent may also have a stronger incentive to develop the innovation than the entrant. There might be economies of scope between the new product and the incumbent's existing products (supply-side synergies). Adding the new product into the incumbent's product ecosystem could also generate consumption synergies for consumers (demand-side synergies). In such a case, the incumbent could earn more from developing the innovation than the entrant (see Bourreau and de Stree, 2019).

The entrant may also lack the necessary funding to develop the innovation. Through the acquisition, the incumbent may bring funding, alleviating these constraints and enabling the development of the technology (Fumagalli, Motta and Tarantino, 2019). It can also be argued that digital conglomerates, which develop through mergers and acquisitions, have **internal capital markets** that are more efficient than external capital markets (Bourreau and de Stree, 2019).

If the incumbent has higher incentives to develop the innovation than the entrant, this means that the incumbent can develop the innovation in cases where the entrant would not. It also means that the incumbent can develop the innovation faster and reduce the time to market. In this case, the acquisition of the innovating new venture by the incumbent may involve **a trade-off from a social point of view: on the one hand, (potential) competition can be eliminated, but on the other, the development or the diffusion of the innovation can be accelerated.**⁹

*In sum, a big tech firm may have an **incentive to kill an acquired innovation** when the cannibalisation of the sales of its existing products by the innovation is larger than the extra revenues it can earn from it (**replacement effect**).*

*Conversely, the acquirer may have **stronger incentives to develop the innovation** than the acquired firm when there are **important supply-side and demand-side synergies** between both firms' products and therefore, the development and diffusion of the innovation can be accelerated through the acquisition. In this case, there is a possible **trade-off between the acceleration of the development of innovation and the elimination of competition.***

2.2.3. The effects on the direction of R&D

A start-up entering the market with the plan to be acquired eventually by an incumbent firm may **orient its R&D in directions that maximise its future acquisition value rather than the value of the innovation.** Therefore, the possibility of acquisition may distort the type of innovation that new ventures undertake. For example, Bryan and Hovenkamp (2019) build a model where a start-up has to decide whether to sell its innovation to a (high-quality) market leader or its (lower-quality) rival.¹⁰ They show that the start-up has an incentive to **bias its research efforts towards the improvement of the leader's technology**, which then increases the market leader's edge over its lower-quality rival.

Cabral (2019) studies the dynamic competition between tech giants and fringe firms and shows that a more restrictive merger policy, making the acquisition of fringe firms by tech giants more difficult, favours radical innovation (which creates a new dominant firm) but decreases incremental innovation (i.e., quality improvements of the existing technology).¹¹

⁹ This trade-off between competition and innovation is due to supply-side and demand-side synergies in product development and is different than the trade-off identified in the famous innovation inverted-U curve of Aghion et al. (2005).

¹⁰ In their model, the start-up has not the option of entering the market directly.

¹¹ This distinction between radical and incremental innovation from industrial organization. A radical innovation is one that replaces the legacy technology, and therefore, the innovator can earn monopoly profits. By contrast, an incremental innovation does not replace the legacy technology, and the innovator earns competitive profits if it enters the market. See de Stree and Larouche (2015) for a discussion of the various forms that innovation can take (incremental, sustaining, disruptive, breakthrough) and their implications for competition policy.



2.2.4. Merger and innovation

The impact that acquisitions can have on innovation is related to the more general question of the impact of mergers on innovation. A series of contributions argue that mergers tend to reduce innovation, for both process R&D (Motta and Tarantino, 2018) and product R&D (Federico, Langus and Valletti, 2017 and 2018).

Bourreau, Jullien and Lefouili (2018) provide a general analysis of the impact of horizontal mergers on demand-enhancing innovation. They show that a **merger has four effects on innovation which may go in opposing directions:**

- an *innovation diversion* effect which arises when innovation affects sales of other products, and which is negative;
- a *margin expansion* effect which arises when the innovation raises margins but also affects the volume of sales, and which is negative;
- a *demand expansion* effect which arises when innovation stimulates demand but has no effect on margins, and which is positive;
- a *return to innovation* effect which arises when the merger affects the gain from innovation per unit of output -- this effect can be positive or negative.

Depending on the specific model used, the authors show that the magnitude of these effects can differ and the overall effect of the merger on innovation can be either negative or positive.

2.3. Summary

The following table summarises the (potential) anti- and pro-competitive effects of acquisitions.

Table 1: Effects of big tech acquisition

ANTI-COMPETITIVE EFFECTS	PRO-COMPETITIVE EFFECTS
<i>Effects on competition</i>	
<ul style="list-style-type: none"> - Elimination of potential competition: the acquired firm offers a substitute. - Reinforcement of market leaders: if start-ups sold to them rather than to rivals. 	<ul style="list-style-type: none"> - Synergies from the acquisition: input and output complementarities.
<i>Effects on innovation</i>	
<ul style="list-style-type: none"> - Innovation killed if the acquirer has less incentive to develop the innovation than the acquired firm. - R&D oriented towards maximisation of acquisition value rather than value of innovation. 	<ul style="list-style-type: none"> - Stimulation of innovative entry, with possibly inefficient entry. - Innovation accelerated if the acquirer has more incentive to develop the innovation than the acquired firm. - Complementarities in innovation capabilities between the acquirer and the acquired firm: capital, skills/talent, data other resources.

03

EU MERGER CONTROL

3. EU merger control

3.1. Notification threshold

At the EU level, the **merger notification threshold is currently based on the monetary turnover of the firms involved** in the concentration.¹² However, big tech companies mostly acquire firms with no or small monetary turn-over as their acquisitions often take place at early stage of acquired firms' development. At that early stage, digital firms focus more on the growth of their customer base than on the growth of their turnover and profit (e.g. because they want to be the first to benefit from network effects and because the market might tip in their favour). This is why the acquisition of Instagram by Facebook was not reviewed by the Commission and why, without the specific referral by national competition authorities, the acquisition of WhatsApp by Facebook would not have been reviewed by the Commission. Yet, a start-up could represent a threat, and hence, there could be a pre-emptive motive behind the acquisition even if the entrant's revenues or profits are small.

To allow the review by the European Commission of big tech acquisitions which can have a detrimental effect on welfare, the current monetary turnover threshold could be complemented by additional notification thresholds. The latter could be based on:¹³

- The **value of the acquisition**, as is now the case in Germany and in Austria. This change will not necessarily increase substantially the number of concentrations to be notified, as the merger transaction value is aligned with the merging firms' monetary turnover in the majority of cases. Moreover, this complement does not imply that all concentrations with a relatively high transaction value over the turnover value should be considered as anti-competitive acquisitions. It merely means that those transactions should be reviewed by the Commission to determine, in particular, whether the high transaction price reflects the important future revenues expected from the diffusion of the innovation (which is welfare enhancing) or if it rather reflects the insurance premium for market stability and monopoly rent with a potential competitor being eliminated (which is welfare detrimental).
- The **market shares of the firms involved** in the concentration on the basis of the market notified by the firms, as is the case in Portugal, Spain and the UK.
- The **characteristics of the acquirer**, as proposed in Furman et al. (2019, p. 95). The report indeed recommends that digital companies designated as having 'Strategic Market Status' (i.e. enduring market power over a strategic bottleneck market)¹⁴ should notify all their acquisitions to the relevant competition authority.¹⁵

¹² Article 1 of the Council Regulation 139/2004 of 20 January 2004 on the control of concentrations between undertakings, O.J. [2004] L 25/1.

¹³ The Commission ran a public consultation on this issue in 2016-2017:

http://ec.europa.eu/competition/consultations/2016_merger_control/index_en.html

¹⁴ For this definition of 'Strategic Market Status', see Furman et al. 2019, p. 10. See also p.55: companies with strategic market status are "those in a position to exercise market power over a gateway or bottleneck in a digital platform, where they control other's market access"; and p. 95: "At a high level, a strategic market status will be applied to large platforms that operate a key gateway in one or more digital markets, with many dependent users on either side."

¹⁵ A French draft law also proposes that firms which have been designated by the competition authority as 'systemic' should notify their acquisitions to the authorities: Proposal for a law to guarantee the freedom of choice on the consumer in the cyberspace tabled at the French Senate on 10 October 2019.

If a complementary notification threshold is deemed necessary, the **choice between those different options should be based on a cost-benefit** analysis. This analysis could be fed by the different experiences in Member States and should ensure that only the acquisitions which present the highest risks for competition and innovation are notified to competition authorities.

In sum, the current EU merger notification threshold – which is mostly based on the monetary turnover of the parties to the concentration – fails to capture the acquisition of high potential firms with no or low monetary turnover.

*To screen those acquisitions, **complementary notification thresholds based on transaction value, the market shares or the characteristics of the acquirer** may be needed. The choice among those options should ensure that only the acquisitions presenting the highest risks for competition and innovation are notified to competition authorities.*

3.2. Theories of harm

One of the main characteristics of the digital economy is quick market evolution due to a high pace of innovation. This has several implications for competition analysis, in particular on the manner market power should be determined, on the anticompetitive effects assessed and on the efficiencies taken into account.

3.2.1. Horizontal and conglomerate effects

When technologies and markets evolve quickly, the potential competition captured by entry barriers is a better indicator of market power than the existing competition captured by market shares.¹⁶ Therefore, when reviewing big tech acquisitions, antitrust authorities should mainly analyse **whether the acquired firm constitutes a potential competitor and a significant competitive threat to the acquirer**. In that regard, the Commission notes in the Horizontal Merger Guidelines that:¹⁷

"For a merger with a potential competitor to have significant anti-competitive effects, two basic conditions must be fulfilled. (i) First, the potential competitor must already exert a significant constraining influence or there must be a significant likelihood that it would grow into an effective competitive force. Evidence that a potential competitor has plans to enter a market in a significant way could help the Commission to reach such a conclusion. (ii) Second, there must not be a sufficient number of other potential competitors, which could maintain sufficient competitive pressure after the merger".

Another consequence of the rapid evolution of the digital ecosystem is that market definitions and boundaries may quickly change; products which were complementary become substitute and firms which were in a conglomerate relationship¹⁸ enter a horizontal relationship. To deal with such issue, Crémer et al. (2019, p. 11) suggest to:

"inject some horizontal elements into the conglomerate theories of harm and try to answer the following questions: (i) Does the acquirer benefit from barriers to entry linked to network effects or use of data? (ii) Is the target a potential or actual competitive constraint within the technological/users' space or ecosystem? (iii) Does its elimination increase market

¹⁶ Case T-79/12 *Cisco and Messaget v. Commission*, EU:T:2013:635, para 69 deciding that: "recent and fast-growing sector which is characterised by short innovation cycles in which large market shares may turn out to be ephemeral. In such a dynamic context, high market shares are not necessarily indicative of market power."

¹⁷ *Ibidem*, para.60.

¹⁸ According to the Commission: "Conglomerate mergers are mergers between firms that are in a relationship which is neither purely horizontal (as competitors in the same relevant market) nor vertical (as supplier and customer). In practice, the focus is on mergers between companies that are active in closely related markets (e.g. mergers involving suppliers of complementary products or of products which belong to a range of products that is generally purchased by the same set of customers for the same end use)": Commission Guidelines of November 2007 on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, O.J. [2008] C 265/6, para.91.

power within this space notably through increased barriers to entry? (iv) If so, is the merger justified by efficiencies?"

Another solution, as we explained in Bourreau and de Stree (2019:27-28), is to move the competition analysis from the output/existing services of the acquirer and of the acquired firms towards the input/innovation capabilities of both firms and **determine whether, after the merger, the merging firms will be able and have incentives to significantly impede competition on those input markets.**

3.2.2. Innovation theory of harm

When reviewing a merger, the European Commission **assesses its impacts on all the parameters of competition such as prices, output, choice and quality**, but also **innovation**.¹⁹ However, the assessment of the innovation aspect of the merger has often been rudimentary in the past. Indeed, in its 2004 Horizontal Merger Guidelines, the Commission notes that:²⁰

"In markets where innovation is an important competitive force, a merger may increase the firms' ability and incentive to bring new innovations to the market and, thereby, the competitive pressure on rivals to innovate in that market. Alternatively, effective competition may be significantly impeded by a merger between two important innovators, for instance between two companies with 'pipeline' products related to a specific product market. Similarly, a firm with a relatively small market share may nevertheless be an important competitive force if it has promising pipeline products."

Dow/DuPont is probably the case where the Commission analysed most extensively the effects a merger could have on the incentives of the merging parties to innovate.²¹ In this case, the Commission concluded that the merger was likely to lead to a reduction of innovation with discontinuation, delay, or reorientation of the parties' existing overlapping lines of research and pipeline products in herbicide and insecticide and to reduced incentives to start new research. For those reasons, the Commission only allowed the merger after the divestment of a large part of DuPont's herbicide and insecticide businesses and R&D organisation, including pipelines at the discovery stages and R&D facilities.

As explained by Ibañez Colomo (2016), **restrictions on innovation may be assessed directly or indirectly** by competition authorities. In the first approach, the authorities focus their analysis on market rivalry and foreclosure that, in turn, influence all the parameters of competition including innovation. Hence, the effects on innovation are only indirectly taken into account as a consequence of the change in market rivalry. In the second approach, the authorities focus their analysis directly on innovation, possibly bypassing the assessment and the proof to the requisite legal standard of market foreclosure.

The indirect approach assumes that a decrease in market rivalry is always detrimental to innovation. However, as explained above, in some circumstances when the supply-side and demand-side synergies in product development are important, a merger may reduce competition while increasing innovation. Hence, the effects on innovation cannot solely be assessed via the effects on competition. As explained in Table 1 of Section 2, **when reviewing big tech acquisitions, competition agencies should assess:**

- The risk of **reduction or even elimination of (potential) competition** when the acquiring firm gains more from maintaining its dominant position through the acquisition than the acquired firm can earn from entering the market. This is likely to happen when the

¹⁹ Commission Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, O.J. [2004] C 31/5, para 8.

²⁰ *Ibidem*, para.38.

²¹ Commission Decision of 27 March 2017, Case M. 7932 *Dow/DuPont*. Most of the merger decisions assessing innovation effects have been adopted in the pharma sector: M.285 *Pasteur-Mérieux/Merck*; M.1846 *Glaxo/Wellcome*; M.7275 *Glaxo Wellcome/SmithKline Beecham*; M.7559 *Pfizer/Hospira*; *Novartis/GlaxoSmithKline Oncology Business*. Other important decisions assessing innovation effects are: Case T-175/12 *Deutsche Börse v Commission* EU:T:2015:148 where the General Court agreed with the Commission's analysis that the pre-merger close competition between the parties was an important driver of innovation, bringing new and improved offerings to customers. Also M.5984 *Intel/McAfee*, M.7278 *General Electric/Alstom*.



acquired firm represents a significant threat to the acquiring firms – which is often the case when the former develops products which are substitutes to the ones of the latter;

- The risk of **elimination of the innovation that was being developed by the acquired firm** when the acquiring firm gains more from killing such innovation than by developing it. This is likely to be the case when the risks of cannibalising the existing products of the acquiring firms are high (because the acquired firms' innovation is substitute to the products of the acquiring firms) and/or when the synergies with existing products of the acquiring firms are low.

To assess both risks, competition agencies may mainly look at (i) the **degree of substitutability or complementarity between the existing and future products** of the acquired firm and those of the acquiring firms and (ii) the **degree of synergies between the innovation capabilities** of the acquired firm and those of the acquiring firms. When there are strong complementarities between products and/or strong synergies between innovation capabilities, big tech acquisitions may lead to a decrease of competition coupled with an increase of innovation. As a result, competition authorities may also have to arbitrate a **trade-off between competition and innovation**.

As we explained in Section 1, innovation can be sustaining or disruptive and incremental or breakthrough. Antitrust authorities may also **arbitrate between the types of innovation** they want to promote. In the *Microsoft* case, as explained by Larouche (2009), the European Commission decided to promote the sustaining innovation by redefining the condition of the new product in the essential facilities doctrine. This approach was validated by the General Court,²² although only implicitly.

3.2.3. Efficiency defence

Given the importance of synergies and complementarities between the input/capabilities and output/products of some big tech acquirers and the acquired firms and as well the broader effects on entry (entry for buyout), **the efficiencies generated by big tech mergers may be important**. Under EU law, the merging parties relying on efficiencies to have their merger cleared should prove an efficiency defence meeting three cumulative conditions: benefit to consumers, merger specificity and failing firm defines.²³

However, the efficiency defence is notoriously difficult to bring in an EU merger review, due to the fact that efficiencies are often analysed sequentially after anti-competitive effects have been proven by the Commission. This is particularly problematic in the digital industry where uncertainty is high and where the three conditions of efficiency defence may be very difficult to prove.

²² Case T-201/04, *Microsoft v. Commission*, EU:T:2007:289.

²³ Commission Guidelines on the assessment of horizontal mergers, paras.76-88 and Commission Guidelines on the assessment of non-horizontal mergers, para.53.

Therefore, as it has been suggested by many authors, the **efficiencies should be analysed simultaneously with the anti-competitive effects and not sequentially** after the harm analysis.

*In sum, competition authorities should **focus more on potential competition** than on existing competition, look at the effects of the merger on **innovation capabilities** and inject **horizontal elements into the conglomerate** theories of harm.*

*Competition authorities should also assess the **effects of mergers on competition and on innovation** as those two dimensions are not necessarily positively correlated. To assess both effects, authorities should focus in particular on the **degree of substitutability or complementarity** between the existing and future products of the acquiring and of the acquired firm and the degree of **synergies between the innovation capabilities** of both firms.*

*Finally, the **efficiencies of the acquisition should be analysed at the same time as the anti-competitive effects** and not afterwards.*

3.3. Antitrust decision under uncertainty

3.3.1. Standard of proof

Currently, the **standard of proof is the same for the European Commission to either authorise or prohibit a merger**.²⁴ This standard of proof relates to the **most probable post-merger** market evolution. According to the Court of Justice of the European Union:

*"the Commission is, in principle, required to adopt a position, either in the sense of approving or of prohibiting the concentration, in accordance with its assessment of the economic outcome attributable to the concentration which is most likely to ensue."*²⁵

Thus, the Commission should authorise the concentration when it is more probable than not that such concentration be pro-competitive and, conversely, prohibit the operation or impose remedies when it is more probable than not that the concentration be anti-competitive.

Translating those rules into the economic framework of decision under uncertainty:²⁶

- the equal standard of proof to authorise or prohibit a concentration means that the Commission should consider **equally type I** (prohibiting a merger that is pro-competitive) **and type II errors** (authorising a merger that is anti-competitive);
- The 'more likely than not' standard means that the Commission should **focus more on the risks than on the costs** of those errors. In other words, the Commission should minimise the risks of errors but not the costs of errors.

Those rules are not in line with the main insights of the economic decision theory under uncertainty. Indeed, Salop (2017) shows that rational decision making under imperfect information should not

²⁴ Case C-413/06P *Bertelsmann and Sony/Impala*, EU:C:2008:392, para 46 and 48.

²⁵ Case C-413/06P *Bertelsmann and Sony/Impala*, para 52; also Case T-79/12 *Cisco and Messaget v. Commission*, EU:T:2013:635, para 47. Advocate General Tizzano went even further by stating that the Commission should authorise the concentration when the market evolution is so uncertain that is not possible to determine a future which is more probable: Opinion of the Advocate General Tizzano in Case C-12/03P *TetraLaval v. Commission* para 76 and 77: ' (...) there is between the cases in which the notified transactions would very probably create or strengthen a dominant position (...) and the cases in which those transactions very probably would not create or strengthen such a dominant position, a 'grey area': an area, that is to say, in which cases are to be found where it is especially difficult to foresee the effects of the notified transaction and where it is therefore impossible to arrive at a clear distinct conviction that the likelihood that a dominant position will be created or strengthened is significantly greater or less than the likelihood that such a position will not be created or strengthened (...) I believe that in such cases the most correct solution is quite certainly to authorise the notified transactions.'

²⁶ On the application of the decision theory framework to competition policy, see the seminal paper of Easterbrook (1984).



necessarily attach more weight to the risks than to the costs of antitrust errors as the Court of Justice requires (and as lawyers tend to do generally). **When the costs of errors are important, neglecting them can be harmful** to consumer welfare. This may be particularly the case in the digital sector where markets tip quickly, meaning that the costs of type II errors may be very high.²⁷

Therefore, several recent policy reports (such as Furman et al. 2019; Crémer et al., 2019) or academic contributions (such as Scott Morton et al. 2019; Motta and Peitz, 2020) are recommending that the Courts adapt the standard of proof and **move from a 'more likely than not' standard to a standard that takes the risks and the costs of antitrust errors equally into account.**

In practice, this means that if the acquisition of a small start-up by a big tech firm would eliminate a credible probability, even small, that such start-up could become an effective competitor to the big tech acquirer, allowing such merger will eliminate the potential benefits, which may be important, of having more competition (Furman et al. 2019, p.98). As the costs of making a type II error may be important, they should be taken into account and may lead to the prohibition of the merger or to the imposition of remedies.

Finally, in the administrative practice of antitrust agencies and the case-law of the Courts, there is a link between the standard of proof and the robustness of the theory of harm. Indeed, if an innovation theory of harm is more affirmed in the case-law as mentioned above, the standard of proof of antitrust agencies is enlarged.²⁸

3.3.2. Burden of proof

Currently, there is no presumption of legality or illegality in the Merger Regulation. As explained by Judge Laitenberger (2018), presumptions can be used for two main objectives:

- First, to **reduce transactions and adjudication costs when**, on the basis of a previous stock of legal cases and/or robust economic theories, **the welfare effects of firms' behaviours are known**. If behaviours are mostly welfare enhancing, they should be presumed to be legal. If on the contrary they are mostly welfare decreasing, they should be presumed to be illegal. As relationship between the types of firms' behaviours and the welfare effects is not monotonic, presumptions are rebuttable in competition law.
- Second, to **allocate information disclosure incentives** to the parties having the least cost for such disclosure, which are generally the ones having the most information. Thus, in case of high information asymmetry, presumption may be relied on to level the "information playing field" and give incentives to the parties having the most information to disclose them to the parties that have less.

With regard to big tech mergers, they are recent, few have been reviewed by competition agencies and even fewer have been analysed ex post (a notable exception is Argentesi et al., 2019). Moreover, the economic theories to analyse their effects are just emerging. Therefore, at this stage, it may be difficult to base legal presumptions on existing antitrust practice and robust theories. However, the asymmetry of information on technology and market evolution between big tech firms and antitrust agencies is probably higher in the digital industries than in others. In such cases, establishing presumption may force big tech companies to disclose information to the competition, thereby reducing information asymmetry (Scott Morton et al., 2019).

²⁷ Case T-201/04, *Microsoft v. Commission*, para 562: "In this case, the Commission had all the more reason to apply [Article 102 TFEU] before the elimination of competition on the work group server operating systems market had become a reality because that market is characterised by significant network effects and because the elimination of competition would therefore be difficult to reverse." Moreover, the rapid market evolution does not necessarily make the costs of type II errors low as then-Competition Commissioner Monti explained nearly 20 years ago: 'I also have doubts that the pace of development in technology sectors will inevitably mean that market failures will last only for a short time. The risk is rather that a position of market power may be temporary in the absence of anti-competitive action – but anti-competitive action by the company with market power would render that temporary strength permanent. This is surely one of the concerns of the Microsoft case in the US, and can also be seen in some of the leveraging cases that I will mention later': *Competition in the New Economy*, Speech at the 10th International Conference of the Bundeskartellamt, 21 May 2001. Also Scott Morton et al. (2019, p.74).

²⁸ Crémer et al. (2019, p.124) also indicate a link between the theories of harm and the proof system.

3.3.3. Reversibility of decisions and remedies

Another – and possibly more radical – way to deal with market uncertainty is to ensure more reversibility into merger review and remedies. One manner to do that would be to allow an **ex post revision of the merger review on the basis of Article 102 TFEU** when market evolution shows that a big tech acquisition has significantly impeded effective competition. This was the legal regime applicable at the EU level before the adoption of the Merger Regulation in the nineties.²⁹ It has the advantage of relying on post-merger information to revise the merger decisions but the drawback of increasing regulatory uncertainty.

Another manner would be to require the merging parties to propose at the time of the merger to antitrust agencies confidential **future divestiture plan** to be implemented if the market evolution shows that the merger significantly impedes effective competition. Again, such option has the advantage of relying on post-merger information to revise the merger decision but may also have drawbacks.

*In sum, the **very high uncertainty in technology and markets evolution should affect both the standard and the burden of proof.** Regarding the former, Courts and then competition authorities could move from a 'more likely than not' standard to a **standard that takes the risks and the costs of antitrust error equally** into account.*

*Regarding the latter, **rebuttable presumptions can be justified to reduce transaction and adjudication costs** when they are based on previous stock of legal cases and/or robust economic theories or to **allocate information disclosure incentives.** Market uncertainty may also be dealt with by introducing **more reversibility in merger review decisions.***

²⁹ Case 6/72 *Europemballage and Continental Can v Commission* EU:C:1973:22.



References

- Aghion, P., Bloom, N., Blundell, R., Griffith, R. and P. Howitt (2005). "Competition and Innovation: An Inverted-U Relationship," *Quarterly Journal of Economics* 120, 701–728.
- Argentesi, E., Buccirossi, P., Calvano, E., Duso, T., Marrazzo, A. and S. Nava (2019). "Merger Policy in Digital Markets: An *Ex-Post* Assessment," CESifo Working Paper No. 7985.
- Arrow, K. J. (1962). "Economic Welfare and the Allocation of Resources for Invention," In R. Nelson, *The Rate and Direction of Inventive Activities: Economic and Social Factors*, Princeton University Press.
- Bourreau, M. and A. de Stree (2019). "Digital conglomerates and EU competition policy," Working Paper.
- Bourreau, M., Jullien, B. and Y. Lefouili (2018). "Mergers and Demand-Enhancing Innovation," TSE Working Paper, n°18-907.
- Bryan, K. and E. Hovenkamp (2019). "Antitrust Limits on Startup Acquisitions," *Review of Industrial Organization*, forthcoming.
- Cabral, L. (2019). "Merger policy in digital industries," Working Paper.
- Crémer, J., de Montjoye, Y.-A. and H. Schweitzer (2019). *Competition policy for the digital era*, Report to the European Commission.
- Cunningham, C., Ma, S. and F. Ederer (2018). "Killer Acquisitions," *Academy of Management Proceedings* 1.
- de Stree, A. and P. Larouche (2015). "Disruptive Innovation and Competition Policy Enforcement," OECD DAF/COMP/GF(2015)7.
- Easterbrook F. (1984). "The Limits of Antitrust", *Texas Law Review* 63(1), 2-40.
- Federico, Langus and Valletti (2017). "A simple model of mergers and innovation," *Economics Letters* 157, 136–140.
- Federico G., G. Langus and T. Valletti (2018). "Horizontal mergers and product innovation," *International Journal of Industrial Organization* 59, 1–23.
- Fumagalli, C., Motta, M. and E. Tarantino (2019). "Shelving or developing? Acquisition of potential competitors," mimeo.
- Furman, J., D. Coyle, A. Fletcher, D. McAuley and P. Marsden (2019). *Unlocking digital competition*. Report of the Digital Competition Expert Panel.
- Gans, J.S. (2016). *The Disruption Dilemma*, The MIT Press.
- Gans, J.S. and S. Stern (2003). "The product market and the market for "ideas": commercialization strategies for technology entrepreneurs," *Research Policy* 32, 333–350.
- Gautier, A. and G. Lamesch (2020). "Mergers in the Digital Economy," Working Paper.
- Gilbert, R. J. and D. M. G. Newbery (1982). "Preemptive patenting and the persistence of monopoly," *American Economic Review* 72, 514–526.
- Ibanez Colomo, P. (2016). "Restrictions on Innovation in EU Competition Law," *European Law Review* 41.



Kamepalli, S.K., Rajan, R. and L. Zingales (2019). "Kill Zone," Working Paper.

Laitenberger J. (2018). *EU competition law: relevance anchored in empiricism*, Speech at the CRA Conference.

Larouche, P. (2009). "The European Microsoft Case at the Crossroads of Competition Policy and Innovation", *Antitrust Law Journal* 75: 933.

Mason, R. and H. Weeds (2013). "Merger policy, entry, and entrepreneurship," *European Economic Review* 57, 23–38.

Motta, M. and M. Peitz (2020). "Big Tech Mergers," Working Paper.

Motta, M. and E. Tarantino (2017). "The effect of horizontal mergers when firms compete in prices and investments," CEPR Discussion Paper 11550.

Ng, W. and T.E. Stuart (2019). "Acquired: Retained or Turned Over?" Working Paper.

Rasmusen, E. (1988). "Entry for Buyout," *Journal of Industrial Economics* 36, 281–299.

Salop, S.C. (2017). "An Enquiry Meet for the Case: Decision Theory, Presumptions, and Evidentiary Burdens in Formulating Antitrust Legal Standards," Georgetown University Law Center.

Scott Morton, F., Bouvier, P., Ezrachi, A., Jullien, A., Katz, R., Kimmelman, G., Melamed, D. and J. Morgenstern (2019). *Committee for the Study of Digital Platforms, Market Structure and Antitrust Subcommittee*, Stigler Center for the Study of the Economy and the State.

Teece, D.J. (1986). "Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy," *Research Policy* 15(6), 285–305.

Tirole, J. (1988). *Theory of industrial organisation*, The MIT Press.



cerre

Centre on Regulation in Europe

📍 Avenue Louise, 475 (box 10)
1050 Brussels, Belgium

📞 +32 2 230 83 60

✉️ info@cerre.eu

🌐 cerre.eu

🐦 [@CERRE_ThinkTank](https://twitter.com/CERRE_ThinkTank)