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Innovation in EU Merger control: in need of a consistent framework

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The European Commission has recently shown great interest in assessing the impact of mergers on innovation. As highlighted below, the Commission has in particular been more interventionist in recent pharmaceutical mergers, requesting divestments of pipeline products including in some cases at an early stage of development, such as in Novartis/GSK Oncology. The Commission has also stressed the need to protect innovation as a rationale for divestment in other technology-driven industries, most recently and prominently in the context of the GE/Alstom transaction.

This article discusses the approach followed by the Commission and argues in favour of developing a consistent framework for assessing the impact of mergers on innovations. Such a framework could help the Commission's case teams assess the impact of mergers on innovations—taking into account both pro- and anti-competitive innovation effects-, and make the analysis more predictable for companies. This article argues that such a framework cannot rely on general presumptions of the effect of mergers on innovation, but rather highlights the key considerations for a sound case-by-case assessment, and favours a relatively cautious approach.

This article is structured as follows. Section 1 refers to recent Commission decisions addressing the impact of mergers on innovation. Section 2 summarises some of the economic evidence and discussion in this respect. Section 3 discusses the practical challenges to assess the impact of mergers on innovation. Section 4 discusses

the assessment of pro-competitive dynamic merger effects. Section 5 concludes with some recommendations.

1. Recent treatment of innovation in EU Merger Control

The recent pharmaceutical merger wave has given the Commission the occasion to intervene and request remedies in a number of transactions, and in some cases, it has explicitly done so with the stated goal of preserving innovation. Note that this article does not aim to address how competition enforcement should generally be conducted in fast-moving, technology-driven industries, but rather focuses on the narrower (but complex) question of how mergers may affect innovation.

Notably, the European Commission's approach regarding innovation has, in recent transactions, somewhat diverged from its traditional approach. In pharma mergers in particular, the Commission's approach has traditionally been the following:

- For current overlap between the parties, market shares are assessed at ATC3, ATC4 and/or molecule level.
- For pipeline products, the investigation considers “phase III” (i.e. latest stage) projects, where either both parties have a pipeline, or where one party has a marketed product and the other a pipeline project.

In the recent Novartis/GSK oncology case, however, the Commission went further and requested

that the parties provide information on earlier phase I and phase II pipeline projects. Following the Commission's investigation, the requested remedies included early pipeline projects as the Commission was concerned that Novartis would – as a result of the transaction – discontinue its clinical trials for a particular drug combination. Specifically, the Commission had two concerns with the transaction as originally notified:

- “That it would have reduced from 3 to 2 the number of companies developing and marketing both B-Raf and MEK inhibitors for skin cancer;
- That it would have reduced innovation, with the likely abandonment of Novartis’ broad clinical trial program for LGX818 and MEK16. These treatments are currently being trialled for a number of other cancers.”¹

In addition to the impact on skin cancer treatment, the Commission thus considered that the transaction would have created a negative impact for the treatment of other cancers for which trials were much less advanced (and thus more uncertain):

“The Commission also assessed the transaction’s specific impact on innovation, by taking into account the expected role of both products in the treatment of a number of other cancers such as ovarian, colorectal or lung cancer. The Commission’s assessment revealed that the merger would not only have led to the abandonment of Novartis’ current efforts to launch its LGX818/MEK162 combination treatment for skin cancer, but also to the abandonment of the broader LGX818 and MEK162 clinical trial program.

In order to prevent a negative impact on competition and to protect innovation, Novartis committed to return its rights over MEK162 to its owner and licensor Array BioPharma Inc. (“Array”) and to divest LGX818 to Array.”²

The Commission’s interest in imposing remedies aimed at preserving innovation in pharmaceutical markets was confirmed a few months later in its

review of the Pfizer/Hospira transaction, in which a remedy was requested for a biosimilar pipeline (in addition to certain sterile injectable drugs). Specifically, the Commission expressed concerns that post-merger, Pfizer may discontinue or delay the development of its biosimilar *Infliximab* drug, aimed at treating autoimmune diseases such as rheumatoid arthritis and Crohn’s disease. In this respect, Commissioner Margrethe Vestager stated: “*This is not just about keeping prices low for patients and healthcare services. We have also made sure that the merger of Pfizer / Hospira does not stand in the way of the research and development of medication that could have huge benefits for society*”.³

It is interesting to note that there is at least some degree of divergence with the US enforcement in the Pfizer/Hospira case, as the FTC did not request any such remedy for *Infliximab*. Of course, market conditions are not identical in the EU and the US, where the development of biosimilars is more recent and the patent for the originator of *Infliximab* will only expire in 2018,⁴ but this divergence still raises questions and is consistent with a stricter enforcement with respect to pipeline products in the EU. In particular, one of the Commission’s concerns was that Pfizer would stop developing *Infliximab* as a result of the transaction; it is difficult to imagine a situation where this would only affect the European market and not the US.

More generally, aside from the pharmaceutical industry, the Commission has also shown an increasing appetite for assessing the impact of mergers on innovation in technology-driven industries. In the 2011 hard-disk drive mergers for instance,⁵ the theory of harm primarily focused on how static competition would be reduced in a multi-sourcing setting aimed at preserving security of supply, but the Commission also found it important to ensure that any divestment would be to a new player with the capacity to innovate.⁶

1 European Commission press release, 28 January 2015 (http://europa.eu/rapid/press-release_IP-15-3842_en.htm).

2 European Commission press release, 28 January 2015 (http://europa.eu/rapid/press-release_IP-15-3842_en.htm).

3 European Commission press release, 4 August 2015 (http://europa.eu/rapid/press-release_IP-15-5470_en.htm).

4 Agata Mazurkiewicz and Arthur Stril, “Pfizer / Hospira: Through the looking glass: assessing competition by biosimilars,” Competition Merger Brief 1/2016 – Article 3.

5 M. 6214 Seagate/Samsung and M. 6203 Western Digital/Viviti Technologies.

6 For a model showing how innovation may be reduced in three-to-two mergers in such a setting, see Xavier Boutin, “Mergers and the Dynamics of Innovation,” ECARES Working paper 2015-15.

More recently, the Commission requested remedies in the GE/Alstom merger, which concerned gas turbines used to generate electricity. In this industry, the Commission considered that innovation is conducted by existing players in incremental steps. In addition to more traditional unilateral effects resulting from the loss of competition between the merging parties, the Commission considered that the “removal” of Alstom would take away the competitive pressure on other companies to invest, and that GE would likely have discontinued some Alstom products and closed the innovation pools developed by Alstom. On this basis, the Commission requested a remedy package aimed at ensuring that innovation would not be reduced.⁷ This set-up is somewhat different from the pharma cases as innovation concerns in Alstom/GE were an add-on to static concerns (but still an important add-on with implications on the design of the remedies).

2. Economic evidence

The economic literature as such provides little general guidance as to the impact of mergers on innovation that could be applied across the board in merger review. This is because, from a theory point of view, two opposing (and possibly simultaneous) effects are at play:

- First, a higher concentration increases the reward for innovation.⁸ That is, less intense competition increases the post-innovation rewards that the firm will capture, which in turn increase its incentives to innovate. This is because firms with more rivals may face a lower capability to reap the rewards of their innovations, e.g. a firm with a low market share may not be able to recoup the cost of its innovations over a large number of units, or because its innovation may be quickly imitated or invented around by competitors.
- Second, less intense competition may reduce the pressure to innovate.⁹ That is, faced with competition, firms will strive to develop

new products and processes to outperform competitors or defend their market positions, leading to higher innovation levels.¹⁰ Furthermore, firms facing little competition will have lower incentives to innovate if their innovation cannibalises their own profit (as opposed to allowing the firm to gain shares from competitors), as such cannibalisation effects reduce the difference between pre- and post-innovation rents.

The case for establishing general presumptions associating concentration and innovation appears rather weak

As highlighted by Shapiro,¹¹ this does not mean however that we do not know anything about potential effects of competition on innovation. There is in fact a wealth of empirical analysis addressing this question in a variety of ways, and while the insights of such research do not allow to draw general presumptions on the impact of concentration across industries,¹² the results do highlight important considerations as to key mechanisms that are likely to affect the impact of mergers on innovation.

Chief among these considerations is whether the transaction is likely to allow the combined entity to capture more benefits from its innovation,

⁷ In a different context, the Commission also partly relied on innovation concerns to block the Deutsche Börse/NYSE Euronext merger, as the Commission considered that the transaction would have removed competition between the parties in product innovation, processes and market design.

⁸ This is the so-called *Schumpeterian* effect (J.A. Schumpeter, *Capitalism, Socialism and Democracy*, 1942).

⁹ This effect is usually associated with Arrow (K.J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in *The Rate and Direction of Inventive Activity: Economic and Social Factors*, 1962, p. 609-625).

¹⁰ For a clearly demonstrated example of such effect, see Syverson, Chad. 2004. “Market Structure and Productivity: A Concrete Example.” *Journal of Political Economy* 112:1181– 222.

¹¹ Carl Shapiro: *Competition and Innovation. Did Arrow Hit the Bull’s Eye?*, in Josh Lerner and Scott Stern: *The Rate and Direction of Inventive Activity Revisited*, 2012, p. 361-410.

¹² Empirically, an inverted U-shape relationship between measures of innovation and competition has been identified (Aghion, Philippe, Nick Bloom, Richard Blundell, Rachel Griffith, and Peter Howitt. 2005. “Competition and Innovation: An Inverted- U Relationship.” *Quarterly Journal of Economics* 120(2): 701– 28), although such relationship provides no direct guidance for assessing specific mergers.

whether it will significantly diminish competitive pressure on innovation, and the degree to which it brings complementary assets together. For example, a merger that will allow the combined entity to apply a more efficient process to a wider sales base may allow the combined entity to reap greater reward from process innovation. Similarly, a transaction that brings together complementary research projects may allow for research cross-pollination and thereby increase innovation.¹³ Such positive effects have to be balanced against the impact of the diminished competitive pressure on innovation: specifically, while pre-merger, an innovation may allow a firm to capture profits from the other merging party, this consideration would no longer be relevant in the decision to invest post-transaction, thereby diminishing the incentive to innovate.¹⁴

The case for establishing general presumptions associating concentration and innovation appears rather weak. In this vein, Katz and Shelanski propose to conduct merger assessments on a case-by-case basis where innovation is at stake, “with a presumption that a merger’s effects on innovation are neutral except in the case of merger to monopoly, where there would be a rebuttable presumption of harm.”¹⁵ The underlying idea being that it is only in the most extreme cases that one can be relatively confident that diminution of the competitive pressure to innovate would be the dominating effect. This departs from the static approach to unilateral effects, where the starting point is that mergers that substantially increase concentration tend to create anticompetitive effects, save in specific circumstances where countervailing forces are at play. While one may debate whether such a rebuttable presumption should apply

less restrictively, there is in any case a marked difference with static unilateral effects, where the link between increased concentration and price increases is more direct than with innovation.

Furthermore, given the specificities of innovation, any assessment of the empirical evidence has to be industry specific. In the pharmaceutical industry for instance, while the available evidence on the effects of M&A on innovative activities and outcome is relatively mixed, there is empirical evidence that pharma mergers may lead to increases in innovation, at least in certain circumstances. For example, Cassiman et al. (2005) conducted case studies and concluded that mergers that combine complementary assets are more likely to increase innovation.¹⁶ Moreover, Meder (2016) finds that pharma mergers generally increase innovation by the parties and their competitors active in the same markets, where innovation is defined as drug development projects. For example, Meder finds that non-merging rivals discontinue 2.5% less and start 3% more development projects in markets when both merging firms are active.¹⁷

While industry-specific empirical evidence cannot substitute for a case-by-case analysis, it may nonetheless provide useful guidance for the assessment of likely merger effects. As with any empirical analysis however, it is important to understand precisely how the effects were identified in order to assess what impact may be expected in a particular case. Specifically, are the factors driving the results in the empirical studies relevant for the transaction at hand? Similarly, is the identification of the effects based on previous transactions that are sufficiently similar to the transaction under review? These are important questions that must be considered carefully in every merger review process.

3. Challenges in assessing the impact of mergers on innovation

“Identifying future competitors for a known product strikes us as generally pretty hard, especially as the time period lengthens. Identifying future competitors

13 In the pharmaceutical context, such complementarities may result from the existing drugs, pipelines and research programs of the merging firms. For example, combination therapies may provide an example of such complementarity. While owners of separate drugs may also combine forces to develop combination therapies, developing such programs is likely easier within a single firm in the presence of transaction costs, relations-specific investments and uncertainty. Empirically, this could be established by testing whether successful combination therapies are developed more often by the owner of both drugs.

14 The magnitude of this impact will depend on the “innovation diversion ratio” between merging firms A and B, i.e. the share of the profits of an innovation by firm A that would have been captured at the expense of firm B, and vice versa. See Farrell, Joseph, and Carl Shapiro. 2010. “Antitrust Evaluation of Horizontal Mergers: An Economic Alternative to Market Definition.” B. E. Journal of Theoretical Economics 10, Article 9.

15 Katz, Michael, and Howard Shelanski. 2007. “Mergers and Innovation.” Antitrust Law Journal 74:1–85.

16 Cassiman, B., Colombo, M., Garonne, P., Veugelers, R., 2005, “The impact of M&A on the R&D process. An empirical analysis of the role of technological and market relatedness”, Research Policy, vol. 34, no.2, pp. 455–476.

17 Hendrik Meder, “The Dynamics of Market-Targeted Drug Development in Post-M&A Environments”, working paper, March 15, 2016.

*for an unknown product is likely to be an order of magnitude more difficult.*¹⁸

The protection of innovation is as much a stated goal of EU merger control as preventing price increases or other increases in market power. For instance, the European Commission's Horizontal Merger Guidelines explain that “*effective competition brings benefits to consumers, such as low prices, high quality products, a wide selection of goods and services, and innovation,*” and that through merger control, the Commission prevents mergers “*that would be likely to deprive customers of these benefits by significantly increasing the market power of firms,*” where increased market power covers the ability of firms to profitably increase prices, but also to diminish innovation.¹⁹

Assessing the impact of mergers on innovation raises a number of practical challenges

Of course, and despite this stated goal, assessing the impact of mergers on innovation is no easy task in practice, and a task for which there is little guidance in the EU. In particular, the effect of mergers on innovation could be neutral, positive or negative, which makes it particularly challenging to establish which effect is to be expected ex ante. As recognized by the Guidelines, while “*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.*”²⁰

This section discusses different approaches that have been proposed to assess the innovation impact of mergers, and highlights some of the limitations and practical challenges involved. In particular, while the concept of potential competition is generally well established in EU merger control, considering future markets requires an additional step that makes the analysis more speculative and thus calls for caution. The alternative concept of innovation markets, which is yet another step further from actual competitive outcomes, is then discussed and found to be too speculative.

3.1 Potential Competition

Potential competition is a well-established concept in EU merger control. As explained in the European Commission's Horizontal Merger Guidelines, mergers of a company already active on a market with a potential competitor not yet active on the market can have similar anti-competitive effects as a merger between current competitors.²¹

However, as stated in the Guidelines, the conditions for a merger with a potential competitor to lead to such an outcome are narrowly defined:²²

- 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.
- Second, there must not be a sufficient number of other potential competitors, which could maintain sufficient competitive pressure after the merger.

Potential competition was the framework applicable to *Infliximab* in Pfizer/Hospira. In this case, Hospira was already present on the market –via a licensed product– and Pfizer was developing an alternative biosimilar drug. While in this case it was clear that Pfizer was developing a product to enter the market, there were also alternatives already present on the market or being developed, so that once potential competitors are taken into account, the transaction would lead to a prospective 5 to 4 reduction in the number of (current and future) competitors (including the

18 Dennis W. Carlton and Robert H. Gertner, “Intellectual Property, Antitrust, and Strategic Behaviour”, in *Innovation and the Economy*, Vol. 3 (2003), p. 29 (Adam B. Jaffe, Josh Lerner and Scott Stern eds, The MIT Press).

19 European Commission Horizontal Merger Guidelines (HMG), 8.

20 European Commission Horizontal Merger Guidelines (HMG), 38.

21 European Commission Horizontal Merger Guidelines (HMG), 58.

22 European Commission Horizontal Merger Guidelines (HMG), 60.

originator drug) – the Commission therefore appears to have applied the second condition above rather loosely.

Another challenge with potential competition relates to the application of the concept to both the parties and their (potential) competitors – a proper counterfactual assessment requires that the pipeline products of the parties and their competitors be treated in a consistent manner. Doing so can be challenging for the Commission as it may not have access to the same degree of information on competitors' projects as it has on the parties', or may not be able to fact-check potentially strategic responses by competitors in the same way as for the information provided by the parties. Despite these practical difficulties, it is nonetheless important to apply the concept of potential competition consistently across firms for the competitive assessment to be meaningful.

3.2 Future markets

While considering potential competition on actual markets already creates practical challenges, a next step would be to consider so-called “future markets”. A focus on future markets would mean that the competition authority would protect competition on a market that is not yet there, but that is likely to soon come to fruition thanks to innovation. Such an assessment is by nature more speculative.

Two different theories of harm may be considered in future markets:

- First, the merging parties may exert a significant constraint on each other in a future market, and this constraint would be removed when both parties belong to the same entity. In such cases, products of both parties would be present in the future market, and competition would be reduced as these would fall under common ownership following the transaction.
- Second, anticompetitive effects may arise when one of the products of the merging parties may not be developed as a result of the transaction, and hence the merged entity may face less competition than the independent companies would after they each develop their own product. In such cases, one of the parties' products is developed and introduced in the future market,

and competition would be reduced due to the termination of the other party's pipeline project.

The traditional approach applied by the Commission in pharmaceutical mergers focuses on the first of these two outcomes: there, the focus was on phase III pipelines, which are reasonably close to be introduced on the market, so that the transaction is likely to soon lead to an overlap in a future market in the same way as a merger between current competitors would in a current market.

The second theory of harm was in fact the focus of the Commission's remedy in Novartis/GSK Oncology, where, as explained in Section 1, the Commission was concerned that Novartis would discontinue an entire clinical program given the redundancy with a similar GSK program.²³ In such situations, the risk would be that post-transaction, there would be one or several fewer treatments on the market compared to the counterfactual scenario. Compared to the first theory of harm, this may lead to a much more problematic situation as the effect would not be limited to an increase in market power, but also to fewer treatment possibilities (assuming that the drugs being developed by the merger parties are not perfectly identical). However, it is also a more speculative theory of harm as there is no guarantee that early pipelines would in fact be successful.

Overall, there are a number of serious difficulties with the assessment of innovation in future markets, which should not be underplayed.²⁴

First, there is no general presumption that mergers will harm innovation. Indeed, as detailed in Section 2, there is no basis to assume that mergers of firms will generally decrease innovation, and a detailed case-by-case and fact-intensive analysis

²³ A similar theory of harm was considered in the recent Medtronic/Covidien merger, which combined two medical device companies. In this case, the Commission considered that in light of Covidien's promising late-stage pipeline product (a drug coated balloon called Stellarex), Covidien would likely have constrained Medtronic in the near future, and that this constraint would be removed if Stellarex was controlled by Medtronic (according to the Commission's decision, Medtronic's internal planning indicated that the development of Covidien's product would have been put to an end after the transaction). The Commission therefore requested the divestment of Covidien's Stellarex business with all the assets necessary to bring the product to market.

²⁴ These challenges also apply to potential competition, but are magnified when dealing with markets that do not yet exist.

is therefore required. It is only in very specific circumstances that mergers may limit innovation – it should therefore be the competition authority's burden to show that such circumstances apply.

Second, a competitive assessment of future markets requires identifying the strength of competitors and alternatives – removing one product from the market is unlikely to have a strong impact if there are many other alternatives. But when considering future markets, it may not be an easy task. For example, for new drugs in early stages of development, information on their efficacy and side effects will be far from established. Yet, the competitive assessment has to address whether they would provide effective competitive constraints on the parties' pipeline products (should these be successfully developed).

Third, there are inherent uncertainties regarding research outcomes that affect the parties' projects. For instance, pipeline drugs at an early phase of development may only face a small probability of success. While the Commission had in the past focused on drugs close to market introduction, i.e. phase III pipelines, it has recently also considered pipeline products in earlier stages of development. This creates its own challenges: while there may be a higher likelihood that a product may not be developed as a result of a merger if it is in an early phase of development, it may also be the case that the product would not have been successful in the absence of the transaction. In its recent approach, it is noteworthy that the Commission did not seek to establish that the product success would be “more likely than not” (i.e. with a probability of success greater than 50%), but seemed to consider sufficient to establish likely harm that the pipeline had a positive probability of success, which sets the bar very low. Yet, properly carrying out such probabilistic approaches is not without complications, as this would in principle require considering a variety of possible states of the world and their associated probabilities.

Finally, the Commission may want to consider effects taking place well beyond its usual two to three year timeline to account for further expected market developments. Yet, any anticompetitive effect is becoming more speculative as the challenges identified above are only magnified the further away in time one considers future

innovation and market developments. Any such future effects should be properly discounted, and save extraordinary circumstances one should err on the side of caution and avoid denying short-term efficiencies in the hope of protecting against potential far-away anticompetitive effects that may never materialise.

A strong asymmetry in the Commission's assessment of positive and negative impacts of mergers on innovation

In any case, a sound competitive assessment cannot abstract from the nature of innovation in the industry in which the transaction is taking place, i.e. where is the innovation coming from and what form does it take? For example, is innovation being introduced from within the industry or from outside players? If so, is it from players present in the same narrow antitrust markets or from broader industry players? Is innovation taking place through the introduction of new goods and services (product innovation) or through the improvement of production and delivery methods (process innovation)? And is this innovation incremental or do we see leap-frogging? Is there path-dependence, meaning that a company's innovation depends on its previous innovation? What is the evidence of effects of past mergers on innovation in the industry? And, last but not least, what are the complementarities between the research programs and assets of the merging firms?

3.3 Innovation markets

Competition authorities are sometimes tempted to focus their assessment on whether a transaction may negatively affect R&D, drawing a parallel between the unilateral effects that a transaction may have on price. If a horizontal transaction leads to a unilateral increase in price, shouldn't we also normally expect that the reduction in

rivalry resulting from the merger would decrease R&D spending? In fact, the relevant question is more complex and such an approach would be misguided.

In the US, focusing on R&D activities - without specific ties to a well-defined current or future market - is an approach that has been discussed under the “innovation markets” concept.²⁵ Innovation markets provide yet another step of abstraction and disconnect from concrete competitive outcomes, as there is no direct and well defined link between the R&D activities and a particular market.

The idea that innovation markets should be a focus of antitrust enforcement has been subject to much criticism. One key shortcoming of the concept is of course that it focuses on an input (the R&D spending) rather than on an output or the competitive outcome.²⁶ Indeed, there is no reason to believe that more spending in R&D is necessarily desirable. In fact, the reduction in R&D input can actually be a good thing if it results from synergies that lead to similar or better output.

Carlton and Gertner further explain that the concept of innovation market rests on three assumptions. First, *reducing R&D expenditures is undesirable*; second, *if there are fewer firms performing R&D, there will be less aggregate R&D and fewer new products*; third, *there are not enough other firms to perform R&D and develop future products to compete with the future products developed by the merged firm*. As explained by Carlton and Gertner, neither of these three claims has been validated theoretically or empirically.

In light of the criticism of innovation market as a basis for merger control enforcement, a sound competition policy should not take R&D as a measure of competition, but rather focus on competitive outcome.

25 Gilbert, R., and S. Sunshine, *Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets*, 63 *Antitrust Law Journal* 569 (1995).

26 Ronald W. Davis, *Innovation Markets and Merger Enforcement: Current Practice in Perspective*, 71 *Antitrust Law Journal* 677 (2003).

4. How to assess potentially positive effects of mergers on innovation

4.1 Counterfactual analysis and efficiency standard

The Commission's assessment has so far mostly focused on potential negative effects of mergers on innovation and investment. Conversely, the Commission has been much more reluctant to consider whether mergers may lead to dynamic efficiencies. There is thus a strong imbalance/asymmetry between the way the Commission assesses the positive and negative impact of mergers on innovation.

The reason is that the Commission assesses potential pro-competitive effects under a strict efficiency regime. Indeed, the HMG recognize that *consumers may also benefit from new or improved products or services, for instance resulting from efficiency gains in the sphere of R & D and innovation*.²⁷ However, under the efficiency regime, the burden of proof is on the parties and the parties must show that efficiencies (i) will be passed on to consumers, (ii) are verifiable and (iii) are merger-specific (meaning that the efficiencies cannot be achieved to a similar extent by less anticompetitive alternatives).²⁸

In practice, the burden and standard of proof on merging parties to establish efficiencies is so high that the Commission nearly never accepts efficiency claims, even when considering static cost reductions.²⁹ Given that dynamic efficiencies linked to innovation are more difficult to establish than static efficiency claims, this seems like an impossible mission.³⁰

27 European Commission Horizontal Merger Guidelines (HMG), 81.

28 European Commission Horizontal Merger Guidelines (HMG), 78.

29 One exception in which the Commission accepted static efficiencies in some markets is the UPS/TNT transaction. However, this transaction was ultimately blocked by the Commission, so that the practical relevance of this precedent is limited – one is still waiting to see a transaction for which the efficiencies clearly tipped the balance in spite of anticompetitive concerns.

30 As explained in the European Commission's Competition Policy Brief of April 2016 on EU Merger Control and Innovation, the only case where innovation efficiencies came close to being acknowledged by the Commission was in the TomTom/Tele Atlas merger. In this case, the parties claimed the combination of the navigation software provider TomTom with the digital map maker Tele Atlas would allow the combined entity to improve the quality and timing of map making process by using driving data from TomTom consumers. While the Commission recognized in its decision that these efficiencies were at least partly merger-specific, the Commission was not convinced by the quantification of the efficiencies put forward by the parties, and considered that in any case the transaction would not lead to any competitive effect irrespective of

The rationale for placing the burden of proof on the parties for static efficiencies is that the parties are generally considered to be better placed to assess synergies and cost reductions resulting from a transaction. For example, the parties may have better estimates of how e.g. their input costs may be reduced as a result of the transaction.

However, when dynamic effects are considered, the question of whether a transaction will likely increase or decrease innovation or investment is one for which there is little reason to insert a strong asymmetry in the standard of proof—a competition authority should be interested in assessing the net impact of the transaction on innovation and only intervene if this net impact is negative.

In other words, it cannot be a desirable enforcement policy towards innovation to assume that anticompetitive effects on innovation are readily established from increased concentration while pro-competitive effects are mechanically denied. Rather, any meaningful assessment of mergers on innovation has to compare the likely outcome of the transaction with the counterfactual.

Buehler and Federico (2016)³¹ argue that there is no reason to adopt a more lenient standard for dynamic than for static efficiencies, implying that the Commission's approach to dynamic efficiencies is appropriate. However, the problem lies with the Commission's practical application of the three-pronged test for establishing efficiencies. While the Commission is generally quick to consider that it has discharged its burden of proof to establish harm, the burden on the parties to establish efficiencies is so high that a horizontal merger has never been cleared by the Commission on the basis of efficiencies outweighing anticompetitive harm (despite recent improvements in the Commission's approach to passing-on).³² The evidentiary burden that the parties need to meet

these efficiencies.

31 Buehler, B. and Federico, G., "Recent developments in the assessment of efficiencies of EU mergers", *Competition law and policy debate*, 2016, v. 2, n. 1, p. 64-74.

32 The way increases and decreases in costs are passed-on to consumers depends on the same demand parameters. It is thus a priori inconsistent to assume that the parties would pass-on the increase price pressure resulting from the transaction but that efficiencies would not be passed-on. The Commission appears to have recognized this point in recent cases, as detailed in Buehler and Federico (2016).

to discharge their burden of proof creates a bias against the parties for both static and dynamic efficiencies. For dynamic efficiencies however, the bias is magnified. This is because, in assessing anticompetitive harm, the Commission applies a probabilistic framework: the Commission seems satisfied to find harm in cases where a project has a positive probability of success (not necessarily higher than 50%), and where there is a probability (not necessarily higher than 50%) that this project would be discontinued as a result of the transaction.³³ This implies a very low threshold for intervention. On the other hand, efficiencies must meet a high verifiability standard, which is near-impossible to meet for future innovation projects, which are by nature uncertain and probabilistic. The risk of this imbalance is that the Commission's competitive assessment becomes remote from a proper counterfactual analysis assessing the expected effect of the transaction on the market, which would require balancing expected pro- and anti-competitive effects of the transaction.

Counterfactual analysis is required to assess the impact of mergers on innovation, whether positive or negative

To illustrate the point, consider for example a project that has a 20% chance of coming to the market before a merger, and a 20% chance of being discontinued as a result of the transaction.

33 See e.g. the Commission's decision in COMP/M.7275 Novartis/GSK Oncology (para 108): "Pipeline products at early stages of clinical development face higher uncertainty as to their future clinical use than pipeline products at advanced stages of development. However, the uncertainty about the outcome of on-going clinical research does not preclude an assessment of the likely effects of the Proposed Transaction on the development of such pipeline products. Whatever the level of uncertainty might be, a reduction in the efforts invested to bring forward a clinical research program can reasonably be expected to reduce its probability of success. Ultimately, the abandonment of an entire clinical research program for a certain product or products would have as necessary consequence the failure in bringing such products to the market."

In such a case, the probability of harm due to the discontinuation of the project³⁴ would be 4%, which according to a probabilistic standard, the Commission may find sufficient to establish harm. On the other hand, efficiencies with a much higher likelihood of success (say 40%) would likely not be considered sufficiently verifiable to outweigh this harm. The risk of type 1 error in such a case appears particularly high; this would be the case if the expected impact of efficiencies (40% times the effect of efficiencies) outweigh the expected impact of harm (4% times the harm due to the discontinued project).

4.2 Trade-off between static and dynamic effects

The Commission's assessment of innovation has mainly considered two different situations where there is no trade-off between static and dynamic efficiencies:

- Situations where the parties will be competing as a result of innovation, but are not already competing. Such situations typically arise when there is a clear link between R&D and specific projects, as in pharmaceutical cases. In such cases, only the impact of the transaction on innovation/future competition matters as there is no impact on current competition between the parties.
- Situations where potential effects linked to innovation are aligned with static effects – e.g. cases where the Commission is concerned that a merger would eliminate static competition between close competitors, and that the transaction would also eliminate the competitive pressure on the parties to innovate.

A potentially more difficult situation arises when there is a trade-off between static and dynamic competition considerations. This is for example the case where a merger leads to a static loss of competition between firms, but at the same time leads to an increase in investment and innovation, e.g. due to the combination of the parties' complementary assets.

³⁴ In this illustrative and simplified example, we only consider the probability of harm due to the discontinuation of the project. Of course, there may also be other types for harm, for example harm arising from a decrease in competition if both projects are successful.

So far, there is no evidence that the Commission is ready to examine such a trade-off in concrete cases. For instance, the Commission's review of recent telecom mergers shows a strong focus on static competition (with detailed and sophisticated analyses of upward pricing pressure),³⁵ despite the fact that investment in new technologies is a key determinant of competition in telecom markets. As a result, key drivers of competition are not fully taken into account by the Commission.

5. Conclusion

Innovation constitutes a key determinant of the competitive process in many markets, and thus a factor that is important to preserve. Yet, a cautious and balanced approach to the assessment of mergers on innovation is warranted as the link between concentration and innovation is much less direct than the link between concentration and static unilateral effects. I would therefore urge the Commission to build both on economic theory and empirical evidence, and on its experience dealing with innovation, in order to develop a consistent framework for its intervention aimed at addressing the impact of mergers on innovation.

Such a framework would need to avoid a situation where anticompetitive effects on innovation are quickly established based on unverified assumptions about the effect of concentration on innovation, while simultaneously imposing a high burden of proof for any dynamic efficiency. Instead, a counterfactual analysis is required to properly assess the impact of mergers on innovation, whether positive or negative.

To be useful, the framework should not only enumerate mere possibilities where mergers could harm innovation, but include a set of limiting principles that the Commission follows when not intervening. For instance, it may be useful for the Commission to state clearly what type of evidence is necessary to establish that the transaction would lead to the discontinuation of research projects, or how it deals with projects with a low probability of success (without casting too wide a net). Such a framework could also address trade-offs between static and dynamic considerations in

³⁵ See e.g. M.6992 Hutchison 3G UK/Telefónica Ireland and M.7018 Telefónica Deutschland/E-Plus.

future cases, hopefully recognising the difficulty of applying a strict efficiency standard that is particularly ill-suited to dynamic considerations.

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