# Antitrust Chronicle

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# CRESSE Insights

CPI COMPETITION POLICY INTERNATIONAL

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# LETTER FROM THE EDITOR

Dear Readers,

The October 2020 CPI Antitrust Chronicle includes articles based on presentations from the online Special Policy Sessions ("SPS") organized by CRESSE in collaboration with CPI in June - July 2020. The contributions here include articles by a number of prominent economists and legal experts.

The 2020 SPSs focused on the following topics:

- Controlling pre-emptive mergers: in need of a new approach?
- Vertical mergers: enforcement developments and guidelines
- Antitrust and regulation in the digital economy

CRESSE (www.cresse.info), is an international network of academics and other professionals, with an interest in Competition Policy and Sectoral Regulation. Every year CRESSE organizes an international conference in Greece that is now widely recognized as one of the top academic conferences in the economics of competition policy and regulation worldwide. CRESSE conferences offer a, probably unparalleled, breadth of academic research, combined with topical policy discussions and insights into the most recent enforcement developments and challenges in the main jurisdictions around the world, that are relevant to enforcers, practitioners and academics alike. The issues in the CRESSE SPSs are examined by invited academics (economists and lawyers), policy makers, corporate representatives and practitioners.

On July 2-4, 2021, CRESSE will organize its 15th International Conference on Advances in the Analysis of Competition Policy and Regulation, in Crete, Greece. **Keynote Lectures** feature the **Competition Policy Keynote Lecture** by Jean Tirole (Toulouse School of Economics), the **J-J Laffont Lecture** by Volker Nocke (Mannheim University), the **Keynote Lawyers' Lecture** by Einer Elhauge (Harvard University) and the **Special Keynote Lecture** by Nancy Rose (MIT).

**Special Policy Session topics planned for 2021 include:**

- Big data and AI
- Vertical relations in digital markets
- Antitrust and regulation in the digital economy
- Digital disruption in banking and its competition and regulation consequences
- Common ownership and its implication for competition law enforcement
- The economics and law of collective actions
- Developments in competition law enforcement in BRICS and developing countries
- Ex post evaluation of competition law enforcement

**We very much hope that the situation with the COVID-19 pandemic in spring/summer of 2021 will not be such as to impede the physical materialization of the CRESSE Conference. In the event that the COVID-19 pandemic situation in many countries prevents us from organizing physically the CRESSE Conference, arrangements will be made so that all the Special Policy Sessions and Keynote Lectures will be delivered online through live streaming to all those registering to attend.**

As always, thank you to our great panel of authors.

Sincerely,

**Yannis Katsoulacos**
**CRESSE Coordinator**

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Competition & Regulation European Summer School and Conference

# SUMMARIES

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## Antitrust Regulation in the Digital Economy

*By Pierre Régibeau*

I distinguish between data-based digital antitrust cases and non data-based cases. So far, the emphasis has been on traditional cases where data did not play a direct role. Although new names are used, the theories of harm are also traditional: bundling, exclusive dealing, and foreclosure. While the remedies obtained in some cases have been criticized, I believe that they are appropriate "looking forward" (preventing continuing damage to competition). There might however be a need to focus more on the "damage repairing" function of remedies. There have been few data-based cases. One of the reasons is that property rights on data and basic regulatory rules have not yet been spelled out. In this sense the ongoing allocation of tasks between regulation and antitrust is important.

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## Opening the Black Box: An Analysis of Google's Behavior in Search and Display Advertising Using Large-Scale Datasets

*By Simeon Thornton, Chris Jenkins, Giacomo Mason & Dan Griffiths*

This article summarizes three quantitative pieces of analysis using large transaction-level datasets that the CMA undertook in a recent market study into online platforms and digital advertising. These are: a comparison of Google and Bing's search advertising prices; an analysis of Google's fees from providing advertising intermediation services; and an assessment of the value of targeting digital advertising through the use of third-party cookies. We find that Google's search advertising prices are 30-40 percent higher than Bing's on a like for like basis, while Google's fees for advertising intermediation services are broadly comparable with those of its competitors. Regarding the value of user data for targeting, we find that blocking access to third-party cookies reduces publisher revenue by around 70 percent. We expect that this form of analysis will become an increasingly important aspect of regulatory oversight of digital markets in the future, as it can provide highly valuable insights into the working of the often-opaque algorithms that increasingly drive digital market outcomes.

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*By Andrew Sweeting, Joel Schrag & Nathan Wilson*

We present a typology of cases involving mergers that could be viewed as eliminating future competition, motivated by recent debates in the antitrust literature about mergers that pose this kind of competitive threat. The different types of cases are distinguished by whether one or both firms have products that are on the market, and whether the nature and future competitive impact of products in development are clear. We show how these distinctions affect the types of economic evidence that can be brought to bear on the assessment of competitive effects. We illustrate our typology using recent challenges brought by the Federal Trade Commission.

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## Analyzing Vertical Mergers

*By Hans Zenger*

Following *AT&T/Time Warner* and the recent adoption of U.S. Vertical Merger Guidelines, vertical merger policy has again become a subject of intense debate. Some commentators have argued that vertical merger enforcement is too lax and should be invigorated, in particular in the U.S. Others see a greater risk of false positives and argue that the standard for intervention should remain high in such cases. Against this background, this article discusses the economics of assessing vertical mergers with a particular emphasis on recent European case practice.

# SUMMARIES


## Highlights of the Much-Awaited U.S. Vertical Merger Guidelines

*By Ana Sofia Rodrigues*

The new U.S. Vertical Merger Guidelines close the gap that was long manifest between the old guidance and both the economic theory and the agencies' practice. The calls for a revision of the guidelines intensified with the *AT&T/Time Warner* unfolding, which raised awareness as to the need for pedagogy regarding the agencies' approach to vertical mergers. The guidelines are now clear on the interdependence between EDM and incentives to foreclosure and develop on bargaining theory, even if abstracting from explaining the logic of threats in a negotiation process. These were key issues raised in the *AT&T/Time Warner* ruling. The guidelines do not, however, uncover the veil on the approach of the agencies to new challenges, such as mergers involving digital conglomerates.


## The Possibility of Social-Surplus-Reducing Vertical Mergers

*By Simon Loertscher & Leslie M. Marx*

Despite the common view that vertical mergers are generally less problematic than horizontal mergers, it is also recognized that they are not always innocuous. We discuss and explain a remarkably general scenario in which a vertical merger reduces social surplus. In a setup in which suppliers' costs are their own private information, if the pre-integration market involves a buyer using an efficient procurement process to purchase from the suppliers, then the post-integration market will be less efficient than the pre-integration market. Specifically, the integrated firm will, at least sometimes, source the input internally, from its integrated supplier, even though an independent supplier has a lower cost. This happens because bilateral bargaining between the integrated firm and the independent supplier is inefficient – it suffers from what economists refer to as a Myerson-Satterthwaite problem.


## Mergers in High-Tech: A Response to Critics

*By Luis Cabral*

Faced with the growing power of tech giants, a number of antitrust analysts advocate for a reversal of the burden of proof in merger review: let the acquirer prove in court that the merger is pro-competitive. I argue that such reform would likely have a significant chilling effect on mergers (which is not surprising) and in turn would likely reduce the rate of innovation (which is more controversial) and ultimately would lower consumer welfare. I respond to a series of objections to this view. I also suggest that a combination of *ex ante* and *ex post* regulation provides the best approach to rein in the high-tech giants' excessive market power.

# WHAT'S NEXT?

For November 2020, we will feature Chronicles focused on issues related to (1) **Data Portability**; and (2) **Collaboration Agreements**.

# ANNOUNCEMENTS

CPI wants to hear from our subscribers. In 2020, we will be reaching out to members of our community for your feedback and ideas. Let us know what you want (or don't want) to see, at: antitrustchronicle@competitionpolicyinternational.com.

CPI ANTITRUST CHRONICLES DECEMBER 2020

For December 2020, we will feature Chronicles focused on issues related to (1) **The Future of IP Licensing**; and (2) **Vertical Restraints**.

Contributions to the Antitrust Chronicle are about 2,500 – 4,000 words long. They should be lightly cited and not be written as long law-review articles with many in-depth footnotes. As with all CPI publications, articles for the CPI Antitrust Chronicle should be written clearly and with the reader always in mind.

Interested authors should send their contributions to Sam Sadden (ssadden@competitionpolicyinternational.com) with the subject line "Antitrust Chronicle," a short bio and picture(s) of the author(s).

The CPI Editorial Team will evaluate all submissions and will publish the best papers. Authors can submit papers on any topic related to competition and regulation, however, priority will be given to articles addressing the abovementioned topics. Co-authors are always welcome.

# ANTITRUST REGULATION IN THE DIGITAL ECONOMY

BY PIERRE RÉGIBEAU[1]

1 Chief Economist, DG Competition, European Commission. Before joining the Commission, the author worked for VISA and against Google in both the Russian and EU *Android* cases. The views presented in this paper are the personal views of the authors. They do not reflect the view of the European Commission, DG Competition or the Chief Economist's team.

# I. INTRODUCTION

While the digital revolution has brought many new products and improved on the delivery of goods and services, it has also raised concerns about increased concentration and potentially abusive conducts that might not be captured adequately by a traditional application of competition policy tools. Of particular note is the increasingly powerful position of so-called digital "gatekeepers," i.e. digital platforms with significant market power – or even a dominant position – in at least one of the markets in which they are active. While the GAFAMs are the posterchildren of digital gatekeepers, other strong digital players such as various booking platforms, matching platforms or marketplaces might also well fall within the category, now or in the near future.

The competitive issues raised by digitalization of course extends beyond the realm of "platforms" – in the domain of standard setting for example – and they have implications for the fool toolset of competition authorities, from merger review to state aid. However, in this short note, I will limit myself to the "antitrust" part of the EU's portfolio, with special emphasis on gatekeepers. In doing so I will discuss not only the application of traditional antitrust instruments within the framework of Articles 101 and 102, but I will also comment on the possible emergence of a new "market investigation" tool and the necessary balance between traditional approaches, the new tool and *ex ante* regulation.

I begin by discussing what I see as the main characteristics of the digital economy in general and digital platforms in particular, briefly sketching out why these features matter for competition policy. I then briefly review the main antitrust actions in the digital sector before coming back in more detail to some of the concerns raised in the first section. I conclude with my thoughts as to how "new instruments" might help us address the specific competition issues raised by the digital sector.

# II. FEATURES OF THE DIGITAL ECONOMY

While the digital economy shares many relevant competition characteristics with non-digital sectors, it is nonetheless with a number of features that make it sufficiently distinct to warrant a separate analysis. In order to set up the scene for the following discussion I briefly review these features. I start with aspects that seem fairly unique to the digital sector and then move to characteristics which, although common in other sectors, seem to assume a particular importance in a digital context.

### *A. Unique" Features*

"Digital" technologies deal with data, be it accumulated data sets, or the information exchanged in any interaction over electronic means of communication. So, data treatment is inescapably at the core of any digitalized sector. What makes the digital economy special though is the manner in which it deals with data: data can be stored and made accessible in huge quantities, they can be processed or analyzed at high speed and they can travel over large distances in the blink of an eye. These characteristics have consequences for competition analysis.

Firstly, they affect market definition both because physical distance becomes less relevant (geographic markets) and because the availability of consumer-specific data enables individually-tailored offerings. Secondly, because data is central to the digital sector, the creation, accumulation, sale, and use of data can have important implication for competition. As discussed further below, this raises important questions about the nature of the data, their ownership, and their transferability. Finally, both organized data storage and data processing at speed and scale rely on the use of ever more sophisticated algorithms. Unfortunately, algorithms are often complex, are constantly modified and, since they can be key competitive advantages, they are closely held. This makes both the detection of abusive conduct and the enforcement of effective remedies challenging.

### *B. Other Relevant Features*

The digital economy is also characterized by a few factors, which are also found in other sectors, but take on a special importance in the digital context. The main such feature is the ubiquity of "platforms," i.e. of undertakings simultaneously involved in several interdependent markets. In the digital world, such interdependence has two major sources: the fact that there are direct or indirect network effects across markets linked to the platform and the fact that information collected in one market can be economically valuable in another market. So again, potential economies of scope and scale in data matter. Still, the greatest concern stemming from the prevalence of platforms, some of which have significant market power, is interoperability: interoperability between different sides of the platform so that undertakings with more limited scope are not at an undue disadvantage, and compatibility of data. Ensuring that data exists in a well ordered (standardized?) format has two main advantages. Firstly, it

facilitates the emergence of "data markets" and data intermediaries. This enables smaller players to (at least partially) bridge the data gap with larger players. Secondly, it also simplifies potential data-sharing remedies if, for example, some of the data controlled by an undertaking were judged to constitute an essential facility.

A second feature of interest is that, currently at least, most digital sectors are "fast moving." This has a number of countervailing implications for competition policy. On the one hand, one cannot assume that large market shares can be sustained for very long, as the risk that a current position is undermined by drastic innovation might be substantial. This, of course, has been the mantra by which many large digital platforms defend themselves against a finding of dominance. On the other hand, precisely because new technologies usually offer quite significant improvements, consumers are keen to switch to new, innovative platform. In other words, entry, at least entry based on drastic innovation, might impose a more significant competitive constrained than in other sectors. What is the correct balance between these two opposing forces, and how might such a balance be achieved?

Finally, whenever some of the cross-platform externalities relate to the supply of complementary products ("indirect" network effects), platforms might become dominant in the corresponding aftermarkets. The best known of such digital aftermarkets are probably the "apps stores" run by both Apple and Google on their respective IOS and Android platforms. Of course, the extent of the market power enjoyed in these markets depends itself of the degree of interoperability existing between various platforms.

## III. ANTITRUST

Over the last five to ten years, competition authorities have investigated a number of potentially anti-competitive conducts by digital platforms. These can be organized into data-related cases and other, more traditional cases.

### *A. Non-Data Cases*

So far, the investigation of digital platforms has focused on three broad types of conduct[2] – and hence of theories of harm.

1. Theories of Harm

As discussed above, hotel booking platforms were investigated for their contractual MFN clauses. While not an explicit agreement between horizontal competitors, such clauses soften competition between rival platforms by modifying the hotels' optimal response to platforms offering reduced commissions. We are therefore in the traditional category of "clauses that reference rivals," such as "meet any price." While such clauses are generally considered anti-competitive[3] they might also be a defense against "show rooming," which is the practice of getting product-related information at a full-service site before completing the transaction, at a better price, at a bare-bones site. The only specifically "digital" aspect of these cases is that such "free riding" might be more prevalent in the online world than when brick and mortar outlets are concerned, as potential clients can "travel" more easily from one seller to the next.

Digital platforms have also been investigated for allegedly leveraging their dominance in one market into another related market. In the Google Android case, for example, both the Russian antimonopoly Bureau and DG Competition is also, at first sight at least, a traditional bundling/exclusive dealing case where dominance in one market (Google store) was used to improve or entrench Google's position in mobile search. Interestingly, the formal economic theory of harm had to make allowances for the fact that Google does not normally charge for users' access to either their browser or their store. While such zero, or even negative, prices on one side of the platform is not unique to the digital world, it is still more likely to arise in this context: if marginal costs are low, accounting for cross-platform externalities can easily lead to no charge or even bonuses (payment cards).

The growing number of cases involving "self-preferencing" fall in the same broad category in the sense that dominance in one market is used in order to help the digital platform succeed in other market. However, this involves direct deterioration of rivals' access to a crucial input rather than contractual means such as bundling or exclusive dealing. I believe that it is important to underline that, in many respects, "self-preferencing" is not a new theory of harm. It is just the application of traditional input foreclosure/access degradation theories of harm to a context where access is managed through opaque algorithms that the dominant platform can readily manipulate to its advantage.

2 Outside of these three main categories of conduct, one must still mention the VISA, Mastercard and Amex cases. Clearly though the main theory of harm relating to the interchange fee or to contractual clauses such as the no surcharge rule where not "digital" in nature.

3 See F. Scott-Morton, 2012-2013, "Contracts that Reference Rivals," 27 Antitrust 72, Heinonline.

The fact that important aspects of the daily competitive conduct of some digital platforms are driven by non-transparent algorithms is problematic indeed, both for establishing competitive harm and for finding – and enforcing – effective remedies. The *Google Shopping* case illustrates these difficulties. Without direct access to and, crucially, complete understanding of the search algorithm, determining whether or not price comparison sites were actually discriminated against is not an easy task. Moreover, even if one observes a change in the treatment of those sites overtime, one needs to determine that this was not the result of a legitimate change in the ranking algorithm. Moreover, if the algorithms are also modified for legitimate business reasons, one must also examine whether there was any other way of pursuing a legitimate business objective with less collateral competitive damage. Carrying out these tasks required enormous use of resources for DG Competition. As for remedies, the flexibility of algorithms makes it relatively easy to achieve a similar anticompetitive effect without infringing the formal commitments or, at least, without making such a breach obvious and hence easy to monitor.

Other theories of harm depend on the business model of the digital platform. There are two broad templates. In the first approach, most of the platform's activities are aimed at gathering data, which are then mostly monetized through online advertising. Because data is so central, issues relating to the advertising market will be (briefly) touched upon in the next section. The second dominant business model is that of the *digital marketplace*. This model has two important variants, one where the platform is mostly a marketplace (think Amazon) and another where the access to the marketplace involves the acquisition of hardware and/or operating systems (Apple being the purest example). This second business strategy naturally leads to *aftermarkets*.

Overall then we see that, so far at least, non-data antitrust cases in the digital sector have not in fact focused particularly on the specific features of digital sectors discussed at the beginning of this note. In this sense, while we can already identify a significant number of antitrust cases in the digital sector, one might say that the era of digital antitrust enforcement has barely begun. This, however, does not mean that these "traditional," cases do not themselves have a strong "digital" flavor, as they at least consider specific aspects of pricing and platform organization in the digital sector.

## 2. Antitrust versus Regulation

Over the last several years, there has been a growing clamor to regulate some aspects of the behavior of large digital platforms. This is coming to a head with DG Competition's recent consultation about the introduction of a "new competition tool) and DG Connect's own regulatory plans. While the final form of any regulation and of its relationship with antitrust is yet to be determined, some clear principles are emerging.

*Ex ante* regulation offers three main advantages over competition policy: it saves resources, it is faster, and it generally provides greater legal certainty. Regulation is also best applied to conducts that have clear-cut implications for competition and consumer welfare and can be applied to a sufficiently large, and well-defined, population of undertakings. This creates some trade-offs. On the one hand, regulation can react quickly to the evolution of the industry, but a fast-moving sector is also likely to accelerate the obsolescence of current rules. This introduces a trade-off between responsiveness and legal certainty. The scope of application of digital regulation also requires some careful balancing. Limiting its application to a few undertakings might help find types of behaviors that are uniformly harmful or pro-competitive across all undertakings. The larger the set of sectors or undertakings to which the digital regulation would apply, the least ambitious this regulation can be as it can only apply to the "common denominator" of good and bad conducts. In this respect, it seems worth remembering that the GAFAMs themselves display such variety in terms of their conduct and business model that the number of rules, which could sensibly apply to all of them is already likely to be limited. There might then be little additional loss in extending the scope of application of the regulations to more digital platforms and/or digital sectors.

I would welcome a division of tasks between antitrust and regulation. From my personal point of view, regulation would be especially helpful in dealing with what we usually refer to as "unfair business practices," over which DG Competition does not have jurisdiction and with matters of transparency. So, for example, transparency in the rules applied by marketplaces and robust appeals procedures would seem to be a low-hanging fruit. One might also set up basic about "display boxes" which are a feature of several platforms, at least requiring transparency in the criteria applied and a guarantee that these criteria are applied uniformly. More controversially, perhaps, one might even consider a broader type of "access regulation" to platforms, which might encompass technical conditions, contractual clauses, or even the amount of the access fee.

Digital platforms are complex objects, relying on technologies that make their conduct less than transparent. Complexity and lack of transparency complicate the task of developing appropriate theories of harm and of tying them to the facts. In this perspective then, "clearing the decks" by entrusting several dimensions of this environment to a regulator would, one would hope, lead to more targeted and rigorous antitrust enforcement. Clearly though, the relationship between regulation and antitrust must remain fluid. In particular, it would make sense to start with

regulation of a moderate scope, adding to the rules as we learn more about other types of conducts. Some of this learning can come from traditional antitrust. Take the example of "self-preferencing." In my view, jumping to a regulatory rule banning this type of conduct in general would be premature as self-preferencing can take many forms and entail different effects. However, antitrust investigations can improve our understanding of this family of conducts to the point where some more specific conduct can safely pass in the hands of regulators.

The development of a "new tool," making it possible to investigate the obstacles to competition in particular digital sectors or subsectors might also smooth the interface between antitrust and regulation in two respects. Firstly, such a tool could be used even in the absence of dominance. Not only does this increase the number of investigations that could be opened, thereby increasing the speed of our learning, but it also means that potentially anticompetitive conduct, or potentially anti-competitive aspects of an industry's environment can be identified before they have led to excessive concentration or even to "market tipping."

### *B. Data Cases*

1. The Problem with Data

As mentioned at the outset, the digital sector revolves around data. It is therefore somewhat odd that, while rumors of investigations abound, we have not yet much in terms significant data-related decisions (the German Facebook case standing as a rather lonely exception). There are two main reasons for this state of affairs. Firstly, property rights over various types of data have not yet been clearly established. Secondly, the use of some types of data and the competitive advantage that they might confer are still poorly understood.

Digital companies, and digital platforms in particular collect different types of data. Broadly, one can distinguish between information about how users behave on the platform and information about consumer behavior outside of the platform (e.g. through cookies). Furthermore, for digital marketplaces, one can add a third category: information about interactions between consumers and non-affiliated sellers in the marketplace. It should be clear that unambiguous property rights are a pre-condition for rigorous antitrust analysis. For example, a dominant platform demanding the right to use the first type of data (platform interaction), without providing a viable alternative for access, might conceivably be seen as an exploitative abuse if the consumer has property rights over this data. This line of argument would not be appropriate if the legal view were that this type of data is actually created by the platform. The allocation of property rights is also crucial to enable (if desired) the trading of data. In turn, such trading might enable smaller players to piece together datasets, which are not dwarfed by the data available to the larger players. Such trade would also be facilitated by the development of interoperability standards for online data sets.

In order to develop coherent theories of harm we also need to understand what the three different types of data mentioned above are, or can be, used for. We know that data about the interaction with the platform can help improve the user's experience. This, for example seems to be the situation in search. We also know that information about a user's purchasing behavior or about characteristics that are closely related to her purchasing behavior (and can come from outside the platform) improves the targeting of online advertising, allowing the platform to charge heftier fees to its advertising clients. But can the same data also be used for different purposes, especially when combined with other data sources? And what about data about the interaction between users and undertakings hosted by the platform? Is it used mostly to further improve matching, or can it also help the platform operator get a leg up on competitors?

Finally, we also need to understand the extent of the competitive advantage conferred by the exclusive use of specific data sets. Search provides a good example in this respect. All known search engines process millions of queries every day. This generates much information about the search behavior of users very fast. Clearly, however, the larger players – and in particular Google – have information about many times more searches that smaller rivals. While it seems clear to a layperson that more experience and data about search make it possible to further refine the search algorithm, what is relevant for antitrust enforcement is the size of the advantage conferred by larger datasets. In other words, how large are the economies of scale in the gathering of search information? The unfortunate answer is that we still do not know much about this.

In the case of search, it seems that, even for a company like Google, further data helps improve the accuracy of the search algorithm for "tail" queries, which represent a substantial part of an individual's daily interactions with the search engine. However, how much do consumers value such further refinements? Also, how durable is this advantage, i.e. how fast does past information become obsolete? Similar issues arise for data fed to advertising matching algorithms…or indeed any algorithm.

2. (Potential) Theories of Harm

Due to the dearth of actual data-based cases, we can only discuss what seem to be the more likely theories of harm in this area.

*Essential Facility*

Many policy makers and commentators are troubled by the amount of information that some companies, in particular Facebook and Google are amassing on various aspects of the characteristics and behavior of their users. Not only might such a large data advantage help these companies entrench their position in a number of markets where they already have significant market power, but there are also concerns that they might leverage their alleged data dominance into other markets. If the data advantage of some firms becomes indeed so large as to preclude the participation of rivals in a number of markets, one could consider building a theory of harm based on the control of an essential data facility. If such theory of harm were to be confirmed, a natural remedy would be to impose some sharing of data with potential rivals. As mentioned before, the existence of standards for data transferability would facilitate such remedies.

However, as explained above, the fact that we know so little about the marginal returns from ever bigger data sets and even less about the magnitude of the competitive advantage that the merging of data sets collected in several markets offer, would make it hard to demonstrate that any current data set should qualify as an essential facility. While such demonstration might become easier as we learn more about data-based competition, I believe that, in the short to medium term, encouraging interoperability and the emergence of markets for data is likely to be a more fruitful policy approach.

*Privacy*

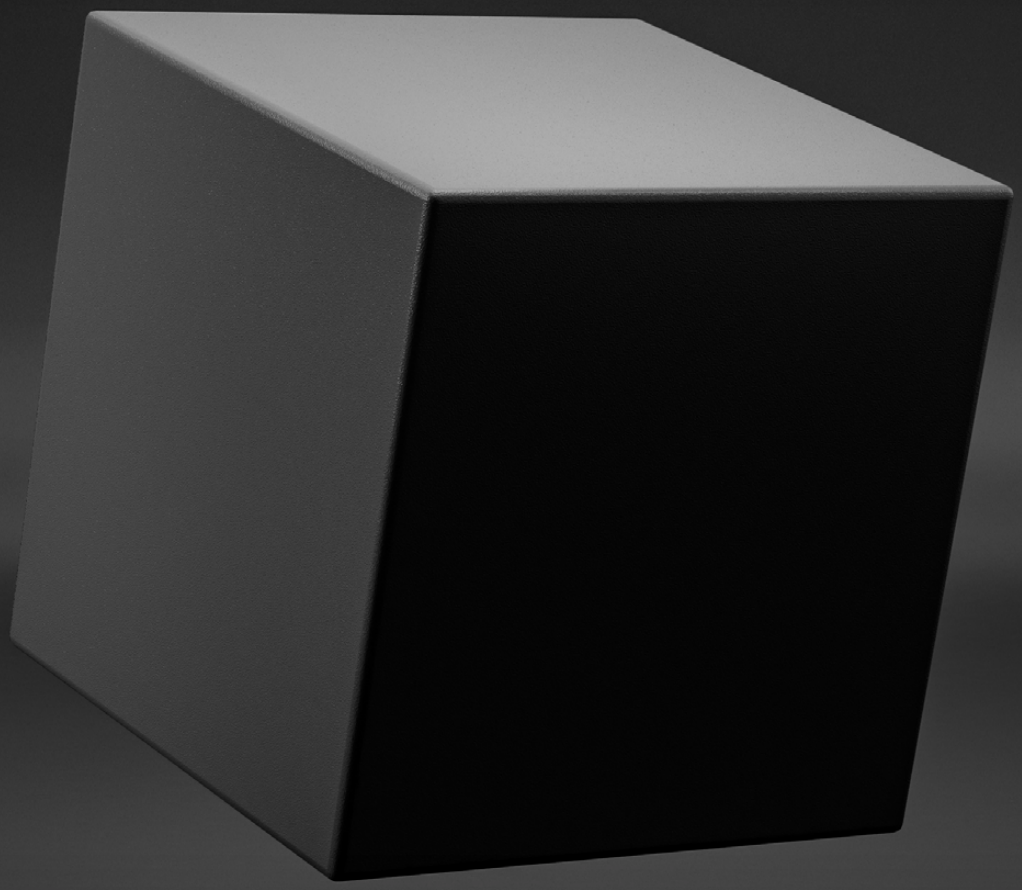
Where a society stands on issues of privacy is not the province of competition policy. Moreover, as mentioned above, antitrust can only perform well if there are clear rules about property rights on various type of personal data. Nonetheless, it can be fruitful to think of privacy as, partly at least, an additional dimension of product or service "quality." In this view then, it would be entirely proper to ask whether a merger would lead to a substantial decrease in privacy for users and to impose appropriate remedies, such as data segregation or limitation on data use without the users' consent.

The implications of "privacy as quality" for antitrust are less clear. One could conceivably worry about conduct by a dominant platform that makes it harder for rivals – or indeed any undertaking operating on the platform – to compete with high-privacy services. I am not aware of any complaint about such conduct so far. Alternatively, it would be logical to consider exploitative theories of harm for lack of provision of adequate levels of privacy in the same way as one can pursue a dominant undertaking for excessive pricing. A problem with this approach (as exemplified by the German Facebook case) is that, while economics provide natural benchmarks for what would be a competitive price, establishing an equivalent benchmark for privacy can be challenging. Moreover, given the reluctance of antitrust authorities to pursue excessive pricing cases, one should not hope that theories of harm based on "insufficient privacy" are likely to flourish.

*Raising Rivals' Costs*

An interesting direction might be to look for conducts that *deprive* rivals or even platform users (potential competitors) from access to data generated by their own activity or conducts that force these undertakings to share these data with the dominant platform. Broadly speaking, both types of conducts could be construed as a manner of "raising rivals' costs" as they weaken its relative ability to compete.

# OPENING THE BLACK BOX: AN ANALYSIS OF GOOGLE'S BEHAVIOR IN SEARCH AND DISPLAY ADVERTISING USING LARGE-SCALE DATASETS



BY SIMEON THORNTON, CHRIS JENKINS, GIACOMO MASON & DANIEL GRIFFITHS[1]




1 Director, CMA, Economics Director, CMA, Data Scientist, CMA, Data Scientist, CMA.

# I. INTRODUCTION

The Competition and Markets Authority ("CMA") conducted a market study into online platforms and digital advertising in the UK between July 2019 and July 2020.[2] Our aim was to assess the state of competition in the sector, and to analyze the sources and implications of market power of the large platforms funded by digital advertising – notably Google and Facebook. The market study concluded that there was a need for pro-competition *ex ante* regulation of digital platforms to address the exploitation of market power by the large platforms and to implement remedies to increase competition in specific markets.

Some other recent studies have drawn similar high-level conclusions and also made a case for regulatory reform, including the Furman and Stigler Center reviews in the UK and U.S. respectively.[3] However, one thing our study was able to do that was not possible in these other exercises was to undertake detailed empirical analysis of very large-scale datasets in order to assess the extent of the concerns in relation to online platforms and the size of the detriment arising from them. This sort of in-depth analysis can provide a robust quantitative evidence base for assessing the case for interventions to address competition concerns in relation to online platforms, and is required in order to move beyond high level prescriptions and diagnoses to detailed design and implementation of the new regulatory regime.

When conducting a market study, the CMA has statutory information-gathering powers to require parties to provide data and other information. Using these powers, we compiled several large transaction-level datasets which allowed us to carry out detailed empirical analysis in a number of areas.[4] This article summarizes three quantitative pieces of analysis we undertook in the study which use large transaction-level datasets and which focus specifically on the behavior of Google in search and display advertising markets:

- A "like for like" comparison of the search advertising prices of Google and Bing;
- An analysis of Google's fees from providing advertising intermediation services; and
- An assessment of the value of targeting digital advertising through the use of third-party cookies

For each exercise, we set out the objectives of the analysis, summarize the data collected and the analysis undertaken, and discuss the results and implications for the study findings. Part of our aim in the market study was to demonstrate the type of data analysis that might be carried out by a future regulator of digital markets, and in the conclusion, we set out some considerations that should be taken into account in undertaking this future work.

# II. COMPARISON OF GOOGLE AND BING SEARCH ADVERTISING PRICES

### *A. Objectives of the Analysis*

A key question for our study was whether the market power of the large platforms leads to higher prices for advertisers. Consumers using online platforms such as Google and Facebook typically do not pay directly for the service; instead they provide attention and data which are monetized by the platforms through the sale of advertising. We would expect platforms with market power to be able to earn higher returns than their competitors from digital advertising.[5]

We tested this hypothesis in relation to search advertising by comparing the UK search advertising prices of Google, which accounts for more than 90 percent of search queries and search advertising revenues in the UK, with those of Bing, its main competitor in the UK, which has less than 10 percent of revenues and queries in the UK.

2 CMA (2020), Online platforms and digital advertising market study. Evidence presented in this article is drawn from this study unless otherwise noted.

3 Furman Review (2019), Unlocking digital competition. Stigler Center (2019), Committee on Digital Platforms Final Report.

4 We are grateful to Google and other parties such as Microsoft for their work in collecting the data used in this analysis.

5 The precise mechanisms by which a platform with market power can charge high prices in digital advertising markets is complicated by the fact that prices in these markets are largely set through real time auctions. In Chapter 5 and Appendix Q of the market study final report we discuss a variety of ways in which platforms can influence the prices in these auctions, and conclude that market power will increase a platform's ability to raise prices compared to a situation in which they were subject to greater competitive pressures.

Google, Bing and other search engines sell advertising based on the search query entered by the user. Advertisers bid to display adverts in response to specific search "keywords." When a user enters a particular search query, the search engine determines which advert(s) to show using a real-time auction, taking account of the price bid by the advertiser, relevance of the advert to the search query, and other quality factors. Search adverts are typically sold on a cost per click ("CPC") basis, where the advertiser only pays if a user clicks on the ad link.

The main challenge for our analysis was how to compare prices on a like-for-like basis. CPC varies significantly by search query (i.e. some search queries have much higher commercial value than others), so a simple comparison of average CPC across all search terms would be affected by differences in the mix of search queries seen by Google and Bing. Similarly, we would expect CPC to vary based on the position of the ad on the page (i.e. a higher ad position is more valuable), and on the device type used (mobile vs desktop). We therefore collected transaction data on search events from Google and Bing as described below, to allow us to control for these factors and identify price differences on a more comparable basis. To our knowledge, this is the first time an analysis of this type has been carried out using a comprehensive dataset from more than one party, allowing for like-for-like comparisons to be made.

### *B. Data Collected*

The CMA collected data for all the (3 - 4 billion) search events made in the UK on Google and Bing during a single week in 2020. For the purposes of the analysis, each search that is undertaken on a search engine is regarded as a "search event." The text that is associated with a search event is a "query." Many queries are associated with multiple search events. The set of queries that remain once duplicates have been removed are "distinct queries." The "frequency" of a distinct query is how many times it appears in the dataset.

For each search event, the CMA could observe: (i) basic characteristics of the user's device, such as operating system platform (mobile, tablet, or desktop) and browser; (ii) number of text ads (ad load), number of clicks, and total revenue; (iii) for the top text ad (the one appearing in the highest position), the cost per click ("CPC") and the price-bid ratio ("PBR") – defined as the ratio between the amount actually paid by the advertiser and the what the winning advertiser had actually bid. CPC and PBR were only observed when the top ad was clicked.

### *C. Results and Implications*

We compared the prices of queries that were observed by both Google and Bing, and calculated the results separately for queries on desktop and mobile, to yield results that can be compared "like-for-like" on a query basis. This allowed us to isolate differences in market outcomes, rather than capturing differences in the scale or distribution of queries across Google and Bing. The results from our analysis were striking. We found that top text ads on Google have a CPC that is on average 30 to 40 percent higher than Bing on both desktop and mobile, for comparable queries where the top ad was clicked.

Differences in the CPC of Google and Bing at the query level may be in part driven by differences in the perceived value of a click between Google and Bing. This may be due, for example, to differences in advertiser or audience composition (e.g. one search engine attracts more valuable users and/or advertisers) or differences in the ability of the search engine to interpret search intent and serve relevant ad results that are more likely to lead to conversions.

To address this issue, we also compared PBRs for Google and Bing, which measure the difference between the winning bid and the price paid. Insofar as the bid is an indicator of the advertiser's willingness to pay (i.e. the value it expects to derive from a click),[6] the PBR controls for any difference in the value of a click on Google as opposed to Bing. A higher PBR means that the platform is able to extract more of the rent or surplus value from the advertising opportunity, and a lower PBR means that the advertiser retains more of the surplus value. Our results show that the PBR for searches on Google is [20 - 30 percent] higher than that of Bing on a like for like basis on mobile and [10 - 20 percent] higher on desktop, indicating that Google is more effective at extracting surplus value from the advertiser than Bing.

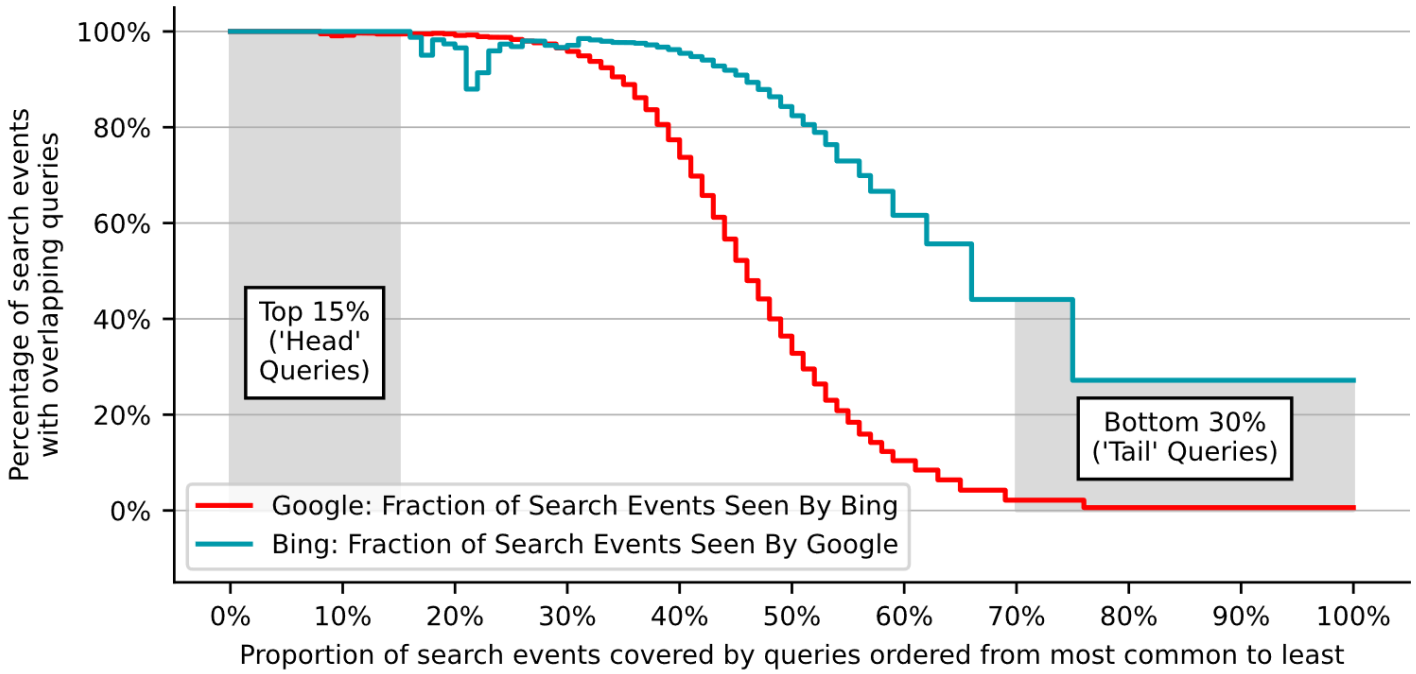
6 This is more likely to be the case where the advertiser sets a maximum bid directly, as opposed to automated bidding, in which the bid is set according to a Google algorithm. In 2019, [40-50] percent of Google's UK search advertising revenue came from advertisers using automated bidding, while the remainder set maximum CPC bid limits. The data we collected did not allow us to distinguish automated from advertiser-set bids. This could be explored in further work.

Overall, these results support the hypothesis that Google's market power gives it an ability to raise prices above the competitive level.[7] Given that over £7bn was spent on search advertising in the UK in 2019, higher advertising prices are likely to result in considerable detriment to UK consumers in the form of higher prices for goods and services that use search advertising, including hotels, flights, and consumer electronics.

In addition to allowing for the comparison of Google and Bing's prices, our analysis shed light on a number of other characteristics of search advertising prices in the UK. For example, we found that ads on less common queries tended to be more expensive than ads on more common queries and that CPCs on desktop were more expensive than CPCs on mobile.

Furthermore, our analysis allowed us to quantify the extent to which Google enjoys greater access than Bing to uncommon "tail" queries, which can be of particular value in training algorithms to improve the quality and relevance of search results. We found that, of the queries that Google only saw once or twice, only 1.0 percent were in the Bing dataset, while of the queries that Bing only saw once or twice, 31.5 percent were in the Google dataset. This is shown in the figure below.

**Figure 1: Distribution of the percentage of Google search events which were for queries seen by Bing, and vice versa, by the frequency of their search query**




Source: CMA analysis of Google and Bing data

We define the head as the 15 percent of queries seen most often in a dataset and the tail as the 30 percent of queries seen least often.

This evidence is supportive of our assessment of Google's scale advantage in search. The scale and variety of click-and-query data seen by Google underpins its ability to provide timely and relevant search results. The benefits of scale are particularly large for less common queries, where Google's advantage over Bing is more significant. In view of the importance of search relevance to consumers and keyword coverage to advertisers, we found that a lack of comparable scale in click-and-query data is likely to be a key factor that limits the ability of other search engines to compete with Google.

7 We note that the prices currently offered by Bing may not reflect the prices that we would expect to apply in a fully competitive market.

# III. ANALYSIS OF GOOGLE'S AD TECH FEE RATES

### *A. Objectives of the Analysis*

A second piece of analysis conducted during the market study related to open display advertising. In this part of the market, online publishers sell advertising in real time via a chain of intermediaries (the "adtech stack") that bring together demand from advertisers and run auctions to decide which ad to show to a specific user on a publisher's site. Various stakeholders in the CMA's market study including publishers, advertisers and public bodies expressed concerns regarding the proportion of advertising revenues in open display which accrues to the providers of intermediation services, and the lack of transparency over these payments.

We carried out an aggregate-level analysis based on information requests to a wide range of intermediaries, which found that ad tech intermediation services accounted for at least 35 percent of the amount paid by advertisers. However, there were concerns that this aggregate analysis might not identify so-called "hidden fees" which could arise if ad tech intermediaries were able to exploit a lack of transparency to take additional margins at different points in the ad tech chain.

We therefore gathered transaction-level data from Google to investigate in more detail the fees it earned at different points in the ad tech chain. While this could only tell us about Google's fees rather than those charged by other intermediaries, Google is the largest player in all the main parts of the ad tech chain, so the analysis was informative about a significant portion of the market.[8] The fact that Google operates in all parts of the chain also meant that we could trace a large number of individual transactions from "end to end," allowing us to observe all payments including any hidden fees.

### *B. Data Collected*

The CMA obtained from Google a dataset containing event-level information generated by Google Ad Manager in the seven-day period beginning March 8, 2020 Pacific Time ("PDT").[9] The dataset covers all Google Ad Manager open auction web traffic in the UK (based on user location) for that week, amounting to several billion observations.

The dataset is at the bid level, including, for each bid, the DSP, the amount bid, any bid floor, and the result of the auction. For the winning bid in each auction, information about buy- and sell-side fees is also available. Finally, the dataset includes user characteristics (operating system, platform, browser) and the domain of the page where the auction took place. This data allowed us to observe the end-to-end payments from advertiser to publisher where Google intermediaries were used – including any possible "hidden fees" which would not be visible to either the advertiser or the publisher.

### *C. Results and Implications*

Our analysis found that, in transactions where both Google Ads and Ad Manager ("AdX") are used, Google's overall take rate was approximately 30 percent of advertiser spend. Overall, Google take rates were broadly in line with, or slightly lower than, aggregate market-wide fee estimates from other sources.

This data allowed us to investigate an additional concern raised by stakeholders, notably UK news publishers, that Google Ads has an informational advantage over other DSPs that allows it to shade its bids in the auction,[10] such that the Google Ads winning margin (its winning bid minus the maximum of the second highest bid or floor price) would be systematically lower than that of other DSPs. Such an outcome could be thought of as a "hidden fee," as Google Ads would be able to maximize the difference between the winning bid in the auction that it holds among buyers on the platform and the bid that it submits to the unified auction.

8 In 2019, Google had a share of [90-100] percent of the publisher ad server segment, [80-90] percent of the advertiser ad server segment and shares of [50-60] percent in supply-side platforms (SSPs) and [50-60] percent in demand-side platforms ("DSPs").

9 In GMT time, the dataset spans from 08:00 on Sunday 8 March to 08:00 on Sunday 15 March.

10 Specifically, the concern is that Google Ads has access to superior data which allows it more accurately to anticipate when it will be the only bidder exceeding the floor price in the first-price unified auction.

To shed more light on these concerns, we calculated the margin between the winning bid and the second highest bid for Google and non-Google DSPs, to test whether Google Ads was systematically able to win with a lower margin over the second highest bid compared to other DSPs. We did not find clear evidence that Google's winning margins were systematically lower than non-Google DSPs. In absolute terms there was some evidence that Google Ads is able to achieve lower winning margins than other DSPs. However, in proportionate terms its winning margins were higher than other those of other bidders.[11]

Overall, the results of our analysis in relation to Google's adtech fees stand in contrast to those regarding Google's search advertising prices, in that we did not find evidence that it systematically charged higher fees than its competitors, notwithstanding its market power in different segments of adtech intermediation. We noted in the study that Google's position was still a source of concern, particularly if it led to reduced dynamic competition and innovation over time, and that Google retained the ability and incentive to raise fee levels in the future.

## IV. THE VALUE OF TARGETING WITH THIRD PARTY COOKIES

### *A. Objectives of the Analysis*

The third piece of analysis related to the value of user data in digital advertising. One of the defining characteristics of digital advertising is the ability to target advertising at specific users or groups of users based on information about their characteristics, preferences and interests. This form of "personalized" advertising is particularly important in relation to display and video advertising. Advertisers want to target advertising at consumers for whom their adverts are more likely to be relevant, reducing deadweight loss and increasing the likelihood of conversion, i.e. achieving a sale as a result of a consumer seeing an advert.

We sought to assess the value of user data by analyzing how access to it translated into higher advertising prices. This analysis helped us to understand how the large platforms' extensive access to data on consumers' preferences and past browsing behavior might act as a source of competitive advantage over smaller players and online publishers. Further, it allowed us to assess how future changes to the market – introduced either by large platforms or by regulatory authorities – that changed participants' access to user data would affect their ability to generate revenue through serving targeted advertising.

Our analysis was based on observing the impact on advertising revenues of "switching off" access to third party cookies, which are a common means of tracking users across the web and targeting them based on their interests.

### *B. Data Collected*

In the summer of 2019, Google ran a global randomized controlled trial ("RCT") to assess the short-run impact of disabling third-party cookies on publisher revenues from display ads. The CMA obtained the data for the UK subset of this experiment and expanded the analysis, to shed more light on the value of cookies in targeted advertising.

The dataset contained a few million impressions where Google was operating on the demand and/or supply side. These impressions were randomly sampled from Google's traffic in the UK, and allocated with equal probability to a control group (the "business as usual" case) and an intervention group, where Google's systems were prevented from accessing the information associated to each cookie ID. For each impression, we observed advertiser payments and publisher revenue for the winning bid, user characteristics (operating system, platform, browser, cookie age) and the domain of the page where the auction took place.

The dataset was smaller than the others discussed in this article. Further, it did not originate directly from a data collection request that was designed by the CMA, but was collected by Google as part of an internal experiment. However, the randomization in the RCT design helps to answer research questions of a causal nature, compared to purely observational data.

11 This result may reflect that Google Ads typically bids for lower valued inventory than other DSPs.

### *C. Results and Implications*

As part of our analysis, we identified a number of sample selection issues and implemented a different econometric approach to tackling each one.[12] Having implemented these, our best estimate was that blocking cookie information reduced average publisher revenue by around 70 percent. Thanks to the availability of rich transaction-level data, we were able to go beyond average effects and investigate whether the effect differs by type of user. We adopted a causal forest approach, which uses machine learning to flexibly account for all possible combinations of user characteristics. We found that the negative effect of blocking cookies on publisher revenue was larger for users with older cookies (and thus with a potentially more complete profile) and was smaller for users navigating with browsers that adopt anti-tracking technologies such as Safari and Firefox.

The results of the experiment make clear that, for individual publishers competing against other publishers that offer personalized inventory using cookies, blocking access to cookie identifiers reduces publisher revenue from users navigating with cookies by a significant amount. This impact is best understood as a short run effect, where the blocking applies to a relatively small subset of impressions in an ecosystem where third-party cookies are the commonplace means of identifying users. A question this experiment cannot answer is what the impact would be in a "long-run market-wide" perspective, where third-party cookies are unavailable throughout the ecosystem. In such a world, the impact on publisher revenue is likely to be mitigated by dynamic responses, for example heavier use of contextual targeting rather than personalized targeting, and alternative methods of cross-site tracking, including fingerprinting.

This analysis proved valuable in helping us understand the importance of Google's announcement early in 2020 that Chrome browsers will stop support for third-party cookies in the future, restricting the ability of publishers to sell personalized advertising.[13] Depending on how the proposals are implemented[14], this decision has the potential to have a significant impact on publishers' revenues and the CMA has undertaken to discuss this with ICO, alongside a number of other issues relating to the interaction between competition and data protection regulation in digital advertising markets.

## V. CONCLUSIONS AND IMPLICATIONS FOR FURTHER WORK

The pieces of quantitative analysis outlined in this paper played an important role in supporting the overall findings of our market study. They provided empirical evidence of the impact of Google's market power on search advertising prices, shed light on fees paid to ad tech intermediaries and quantified the value of access to personal data on for targeted advertising. This quantitative work is important in evidencing the scale of harm from lack of competition, and in providing the basis for assessing the costs and benefits of potential regulatory interventions.

We expect that this form of analysis will become increasingly important as part of regulatory oversight of digital markets in the future. One of the key characteristics of digital markets is their reliance on real-time processes driven by algorithms, based on access to very large sets of data on the behavior and characteristics of consumers and other market participants. These processes can be very hard for third parties (including regulators) to assess. For example, the way in which auction prices are adjusted to take account of quality cannot be observed purely by interrogating auction outcomes, and transactions in the open display market typically cannot be traced from "end-to-end" – i.e. from the advertiser to the publisher on which an ad is shown. We think that regulators will increasingly need the powers to request and interrogate large datasets from the platforms in order to understand their behavior and to ensure that any regulatory rules designed to prevent exploitation of market power are being complied with.

The experience of carrying out large-scale data analysis during the market study has highlighted some lessons that can inform the future work of the Digital Markets Unit ("DMU"), a body proposed by the Furman Review and the CMA's market study to regulate the behavior of large online platforms and encourage greater competition in online platform markets. We have found that this type of analysis should be well within the reach of a regulator like the DMU. Thanks to advancements in open-source software, multiple well-known tools are available that can perform data manipulation and statistical analysis. The availability of cheap cloud computing resources allows this type of analysis to be scaled in a mostly seamless fashion, making the processing of large amounts of data possible. These capabilities can be effectively supported by building in-house teams with specialist data science and software development knowledge, whose skills can be leveraged in concert with more traditional specialist profiles already present within competition authorities and regulators.

12 These are described in detail in the Annex to Appendix F of the market study report.

13 Chromium Blog, 'Building a more private web: A path towards making third party cookies obsolete'.

14 Google has undertaken through its Privacy Sandbox project to replace the functionality currently served by cross-site tracking with privacy-conscious approaches to ads targeting and ads conversion measurement.

The right tools and skillsets can enable more ambitious analysis. In the instances described in this paper, we chose to collect transaction-level data rather than asking parties to compute aggregate figures beforehand. This clearly increases the workload on the regulator's side. However, it has numerous advantages: it provides more insight into online platforms, enabling regulators to understand their dynamics on a deeper level; and it increases flexibility in the analysis, allowing for adjustments rather than being wedded to a fixed, pre-specified analysis. Furthermore, the code generating the analysis can be shared with the parties – which reduces the chance of errors and increases transparency. All of these aspects are likely to be particularly important for the DMU, with its envisaged powers of continuous monitoring, and assessment.

Finally, we note that working with personal or otherwise sensitive data need not be an obstacle to the pursuit of regulatory functions. Throughout the study, we were able to cooperate effectively with parties and minimize the risks connected with transferring and analyzing personal data, for example by anonymizing transaction-level data and encrypting potentially sensitive information such as search engine queries. In more complex cases, privacy-enhancing technologies can be used to enable sharing of information across parties while preserving confidentiality.[15]

15 See Royal Society (2019). Protecting Privacy in Practice. The current use, development and limits of Privacy Enhancing Technologies in data analysis.

# NOT ALL PRE-EMPTIVE MERGERS ARE ALIKE: A CLASSIFICATION OF RECENT CASES

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# I. INTRODUCTION

There has been much recent debate about whether antitrust agencies *have been* sufficiently attentive to preemptive mergers, where one firm acquires another that it expects will become a more vigorous competitor in the future.[2] The suggestion, sometimes described in terms of "killer acquisitions" (Cunningham et al., 2020), "kill zones" (The Economist, 2018),[3] or, less graphically, "the elimination of nascent competition," is that agencies may have allowed transactions that, while perhaps not substantially reducing competition in the short-run, deprived consumers in the future of lower prices, better products, and more variety. It has been claimed that these types of mergers have been particularly common in certain sectors, such as the tech and pharmaceutical industries (Hemphill & Wu, 2020),[4] but it is an open question whether these issues arise more generally.

The debate has touched on questions related to both the economics of innovation and investment, as well as the design of policy. For example, the theoretical relationship between market concentration and innovation is ambiguous because a firm may have more incentive to introduce a new product when it has market power (this is often called the "efficiency effect"), but, as a force in the other direction, an incumbent may have less incentive to introduce new products that will cannibalize its existing sales ("replacement effect").[5] However, a recent contribution by Federico et al. (2020) argues that, notwithstanding this ambiguity, a merger between competitors will typically cause innovation to fall.[6] In terms of policy, the debate has asked whether it would be appropriate to change presumptions or the burden of proof so that parties would have to demonstrate procompetitive effects, and whether HSR thresholds should be reduced to prevent firms eliminating nascent rivals without agency scrutiny.[7]

While we believe that these issues are important, we also believe that the nature of the debate might lead people to believe that similar issues are raised by all preemptive merger cases, whereas we think that this is not the case. The main objective of this short article is to provide a typology of horizontal preemptive merger cases, distinguished by whether one or both firms have products that are on the market, and whether it is clear what the products that are in development would ultimately look like. While antitrust enforcement agencies have to answer the same question ("will this merger reduce future competition?") in each category, and the way that we divide a continuous spectrum of cases is necessarily a little arbitrary, we believe our classification is useful in explaining why fact patterns, types of evidence and, sometimes, opinions about these cases can differ.

We illustrate our discussion using recent preemptive merger cases brought by the US antitrust agencies, and the FTC in particular. In doing so, our article builds on discussions by Feinstein (2014),[8] Hoffman (2019),[9] and Moiseyev (2020).[10] However, we take the viewpoint of economists who are interested in the types of evidence and analysis that can be used to determine whether a merger will reduce competition relative to a but-for world where the proposed merger does not happen. We do not focus on more legal questions such as where to draw the line between, for example, "actual potential competition" and "perceived potential competition," or when it is appropriate to challenge a preemptive merger under Section 2 of the Sherman Act, rather than Section 7 of the Clayton Act. Our discussion will also highlight that, when analyzing future competitive effects, it is also necessary to assess possible efficiencies and the possibility that firms that are not party to the merger may also emerge as competitors.

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2 For example, the FTC's Hearings on Competition and Consumer Protection in the 21st Century (October 2018), Senate Antitrust Subcommittee (September 2019) and the OECD Competition Meetings (June 2020) have all involved panel discussions or hearings on topics related to the acquisition of nascent or potential competitors.

3 https://www.economist.com/business/2018/06/02/american-tech-giants-are-making-life-tough-for-startups.

4 Hemphill, C. Scott & Tim Wu (2020), "Nascent Competitors," *University of Pennsylvania Law Review*, forthcoming.

5 The balances of these forces have been investigated empirically in, for example, Igami & Uetake (2020), who try to understand the effects of consolidation on innovation in the hard disk drive industry. Igami, Mitsuru, & Kosuke Uetake, "Mergers, Innovation, and Entry-Exit Dynamics: Consolidation of the Hard Disk Drive Industry, 1996–2016," Review of Economic Studies, forthcoming.

6 See, in particular, Section 2.4 of Federico et al. (2020), "The Misleading Economic Literature on Competition and Innovation." Federico, Giulio, Fiona Scott Morton & Carl Shapiro (2020), "Antitrust and Innovation: Welcoming and Protecting Disruption," *Innovation Policy and the Economy*, 20(1), 125-190.

7 For example, the UK's Furman report on "Unlocking Digital Competition" (2019) considered a presumption against acquisitions by large technology companies, although it ultimately rejected the change as appropriate. Cunningham et al. (2020) and Wollmann (2019 and 2020) provide evidence on problematic acquisitions being completed underneath existing notification thresholds. Cunningham, Colleen, Florian Ederer, & Song Ma (2020), "Killer Acquisitions," Yale University. Wollman, Thomas (2019), "Stealth Consolidation: Evidence from an Amendment to the Hart-Scott-Rodino Act," American Economic Review: Insights, 1(1), 77-94. Wollman, Thomas (2020), "How to Get Away with Merger: Stealth Consolidation and Its Real Effects on US Healthcare," NBER Working Paper.

8 https://www.ftc.gov/system/files/documents/public_statements/forward-looking-nature-merger-analysis/140206mergeranalysis-dlf.pdf (accessed July 24, 2020).

9 https://www.judiciary.senate.gov/imo/media/doc/Hoffman%20Testimony2.pdf (accessed July 24, 2020).

10 https://www.competitionpolicyinternational.com/potential-and-nascent-competition-in-ftc-merger-enforcement-in-health-care-markets/.

## II. DEFINITION OF PREEMPTIVE MERGERS

For the purposes of this article, we define a preemptive merger as a merger between firms whose broadly-defined "market positions," at the time of the transaction, are likely to understate how closely the firms would compete in the future absent the merger. We use the term market positions to capture the relative competitiveness of the firms based, for example, on the specifics of the products on the market, if any, and the costs that the firms incur to produce and distribute those products, as well as simple measures such as market shares.

We interpret our definition to include mergers involving two firms that already sell substitute products, where, without the merger, one or both of the firms is likely to improve its market position in the future due to falling costs or improved quality. We also interpret it as including mergers where one or both firms do not currently sell products of the type being considered, so do not currently have any sales, but have products that are in development. When one firm has a product in development, we may already see some effect of competition on prices, as customers anticipate how the market may change in the future, but we would typically expect (quality-adjusted) prices to fall more when both firms have products available for purchase.

The definition does not, however, require that preemptive mergers have net anticompetitive effects, as they might allow products to be brought to market more quickly, with higher probability or with lower cost. If the merger is reviewed, the likely net effect is something that the agency has to evaluate.

Our definition, because it requires that competition would likely increase absent the transaction, does, however, exclude some transactions that could be described as eliminating "potential competition." For example, suppose that the merging parties currently produce two different grades of a chemical that are sold to industrial customers for different end-uses. However, the firm making one grade could, if prices increased, switch some of its capacity to making the grade supplied by the other party. In this case, the merger might, because it eliminates a potential producer, have anticompetitive effects even though the products that the firms typically produce are not direct substitutes. As long as this situation is expected to remain stable absent the merger, then the merger would not count as preemptive for the purposes of our definition, although it could, of course, raise other types of competitive concern.

## III. TYPOLOGY

We now develop our typology of cases. The classification is organized so that it progresses towards cases where the parties are further away, in terms of time and the development of their products, from competing head-to-head in a relevant product market. There will obviously be cases that lie close to the boundaries of the different groups, and so are hard to classify, and some cases will fit into different types for different products, but we believe that the groupings can help to understand the types of issue and evidence that typically matter for an agency's assessment.

***Type 1: Both parties already offer competing products, but one or both of them will likely become more significant competitors absent the merger.***

This type of case is most clearly illustrated by examples where a large incumbent firm proposes to merge with a smaller rival that is growing as its technology improves or its distribution expands. From an economist's perspective, it may sometimes be easier to show competitive effects in these cases than in ones where market shares are stable, because it may be possible to identify how the incumbent has been changing its pricing, marketing or other strategies to address the growing threat to its customer base.

Three recent cases where transactions were abandoned after the FTC issued a complaint, CDK/Auto/Mate (complaint issued 2018), *Illumina/PacBio* (2019), and *Edgewell/Harry's* (2020), illustrate the issues and types of evidence that may be involved in this type of transaction. In the first case, CDK, one of the two leading suppliers of car Dealer Management Software ("DMS"), proposed to acquire Auto/Mate, which offered a competing platform but with lower prices, shorter contracts and more flexible integration with third-party applications.[11] Auto/Mate was experiencing double-digit annual sales growth, and documents revealed how CDK's customers used Auto/Mate to negotiate better terms and lower prices. In contrast, other small DMS suppliers displayed low growth and lacked certifications from major car manufacturers, making it unlikely that they would replace the competitive pressure from Auto/Mate. The FTC also found that the price that CDK was willing to pay for Auto/Mate was significantly above its initial valuation of the business, with the premium reflecting a desire to prevent Auto/Mate's acquisition by an alternative buyer that could accelerate its growth.

11 https://www.ftc.gov/system/files/documents/cases/docket_no_9382_cdk_automate_part_3_complaint_redacted_public_version_0.pdf.

In *Illumina/PacBio* (2019), the FTC challenged the acquisition of Pacific Biosciences ("PacBio") by Illumina, the dominant supplier of systems for "next-generation DNA sequencing." At the time of the acquisition, PacBio, which supplied systems that could read longer gene sequences than Illumina's systems, had recently released a new system that would allow its customers to do so at lower cost, so that, based on documents from both parties, the acquisition was expected to prevent significant competition from emerging.[12]

In *Edgewell/Harry's* (2020), Edgewell, the maker of Schick and several other brands of wet shave razors, proposed to acquire Harry's, which, after developing a direct-to-consumer business, had successfully entered several brick-and-mortar retail chains and had just launched a range of shaving products for women. The FTC used the fact that Harry's retail entries had caused Edgewell and Procter & Gamble, the maker of Gillette razors, to lower their prices and increase marketing as evidence that the merger would substantially reduce both current and future competition.[13]

***Type 2: One firm has a product on the market, and the other firm does not yet sell a product in the market but is about to do so.***

In the first group of cases, one could use direct evidence about current competition, such as an incumbent losing customers, to argue that competitive effects at least as large would arise in the future absent the merger. In contrast, in the second type of case, the market share of one of the firms may be exactly, or close to, zero, so that additional projection is required. However, this does not imply that direct evidence of competitive effects is necessarily absent.

In *Polypore* (Commission decision 2010) the FTC challenged a merger that had been consummated in 2008 between Polypore, the leading US manufacturer of separators for use in a variety of types of flooded lead-acid batteries, and Microporous, another supplier. The Commission's final decision in the case, as well as the Commission's administrative law judge's ("ALJ") decision, distinguish, in a useful way, between how far the merger could be expected to reduce competition for different types of battery.

For starting, lighting and ignition ("SLI") batteries, the Commission decided that, even though Microporous had not won any significant contracts, "it had made meaningful progress towards supply arrangements with JCI and Exide, two of the largest automotive battery manufacturers in the world," and it had forced Polypore's Daramic division, whose sales accounted for 48 percent of the market, to lower its prices.[14] Therefore, the merger eliminated current competition, as well as future competition for SLI separators. On the other hand, the Commission decided, in contrast to the ALJ, that the merger did not lessen competition in the market for uninterrupted power supply batteries because, even though Microporous had a development program for this type of separator, its success was "in doubt" and there was no evidence of competitive responses from Daramic. Of course, while economists are well-placed to interpret competitive responses from rivals, they are more dependent on documents and technical experts to assess whether technological problems are likely to be overcome.

The fact that the merger was consummated also allowed the Commission to identify post-acquisition price increases for certain types of battery separator that were consistent with the elimination of competition and the absence of efficiencies that would offset the incentive to raise prices. It was also able to use the failure of other firms, including non-US suppliers, to initiate supply in the United States as evidence against Polypore's claims that entry would constrain prices.

In this category we would also include cases where one might not yet observe effects on prices, but there is a very clear expectation of what these effects may look like. For example, the *Ameristar/Pinnacle* (2013) casino merger involved a firm (Pinnacle) that operated the largest casino resort in St. Charles, Louisiana and a firm (Ameristar) that was constructing a similarly-large resort on an adjacent site.[15] Based on the observable effects of competition in other markets where both firms operated casinos and the fact that the "entry and competitive significance" of Ameristar's casino were virtually certain, the FTC predicted post-entry market shares, and argued that the transaction was presumptively illegal. The documentary evidence was also consistent with both firms' executives expecting substantial diversion between the casinos.

12 "When the parties entered into the Acquisition agreement, PacBio expected its Sequel II instrument and related chemistry improvements to be an inflection point for the company. The Sequel II will expand the projects and use cases for which customers could use PacBio, and will position PacBio as a much closer alternative to Illumina." https://www.ftc.gov/system/files/documents/cases/d9387_illumina_pacbio_administrative_part_3_complaint_public.pdf (accessed July 21, 2020). The UK CMA also challenged the transaction.

13 https://www.ftc.gov/system/files/documents/cases/public_p3_complaint_-_edgewell-harrys.pdf (accessed July 21, 2020).

14 https://www.ftc.gov/sites/default/files/documents/cases/2010/12/101213polyporeopinion.pdf (accessed July 21, 2020).

15 https://www.ftc.gov/sites/default/files/documents/cases/2013/05/130529pinnaclepart3cmpt.pdf (accessed July 21, 2020).

In some cases, the focus is on the question of whether the firm being acquired would find it profitable to enter absent the transaction, rather than whether it had the capability to do so. In 2015, the FTC challenged a proposed merger between Steris, one of two providers of contract radiation sterilization services, using gamma radiation, in the United States and Synergy, a European firm that was allegedly in the process of expanding its US business lines to provide similar services but using x-ray sterilization technology.[16] The FTC's evidence was based on details of Synergy's plans prior to the acquisition, which included assembling a team to run the x-ray business, site selection for x-ray sterilization facilities, and negotiations with potential customers, as well as the concentrated nature of the US market and the lack of substitutes. The District Court rejected the FTC's request for a preliminary injunction based, in part, on the testimony of Synergy executives that the proposed "business model failed every one of the metrics Synergy uses to rank capital investments."[17]

***Type 3: One firm has a product on the market, and the other firm does not yet sell a product in that market but it may start to sell a well-defined product in the foreseeable future.***

In this type of case, which is encountered in some branded or generic pharmaceutical mergers, the concerns are that either the merger will eliminate price competition if the product in development is brought to the market, or it will lead to the development of the second product being abandoned.

The FTC has required divestitures of products to address these concerns in a number of pharmaceutical mergers. For example, in *Bristol-Myers Squibb/Celgene* (2020), the Commission was concerned about a loss of future competition between Celgene's successful Otezla treatment for moderate-to-severe psoriasis and BMS 986165, a psoriasis drug in development which, at the time of the transaction, had promising clinical trial results.[18] The Commission required the divestiture of Otezla, the existing product on the market, as a condition of the merger. In *GlaxoSmithKline/Novartis* (2018), the Commission required Novartis to sell its BRAF and MEK-inhibitor drugs in development out of concern that it would halt development when acquiring GSK's portfolio of cancer treatment drugs, some of which had identical mechanisms of action.[19] Novartis was also required to provide the purchaser of the drugs in development with transitional services to maximize the probability that the drugs would be brought to market. This highlights a common issue that arises in these cases, where the divestiture or licensing of assets on its own, without additional help, access to specialist workers or financial support, may not be enough to make it likely that the development project will not be adversely affected by either the merger or the remedy. In *Actavis/Watson Pharmaceutical* (2012), the Commission required divestitures of 14 products where either one or both firms had generic products that were in development.[20]

While pharmaceutical merger cases have rarely been litigated, the setting is attractive for the development of quantitative economic evidence. For example, the structure of the clinical trial process provides a framework for assessing how likely products are to be brought to market absent the merger,[21] while likely indications will affect diversion patterns amongst drugs. Empirical research provides estimates of the typical price effects associated with additional generic entry (for example, Olson & Wendling (2018)).[22] In addition, the clinical trial framework allows for an accurate accounting of which other firms also have development projects, as well as a source of estimates of whether they are equally or more likely to be successful. Therefore, even though each possible drug overlap will have unique features, there are reasonable ways to formulate quantitative predictions of anticompetitive effects even when one firm does not yet have a product on the market.

Of course, pharmaceuticals are also the setting where Cunningham et al. (2020) provide quite convincing empirical evidence that some acquired firms' pharmaceutical development projects have been eliminated when they overlap, in terms of therapeutic category and mechanism of action, with drugs that the acquiring firm already has on the market. They suggest that many acquisitions may be motivated primarily by the

16 https://www.ftc.gov/system/files/documents/cases/150529sterissynergytro.pdf (accessed July 21, 2020).

17 Order Denying FTC's Motion for a Temporary Restraining Order and Preliminary Injunction, *FTC v. Steris Corp. & Synergy Health plc*, Docket No. 1:15-cv-1080 (N.D. Ohio Sept 24, 2015), p. 35.

18 https://news.bms.com/press-release/bristolmyers/bristol-myers-squibbs-novel-oral-selective-tyk2-inhibitor-delivered-signi (accessed July 21, 2020).

19 https://www.ftc.gov/system/files/documents/cases/150408novartiscmpt.pdf (accessed July 21, 2020).

20 https://www.ftc.gov/sites/default/files/documents/cases/2012/10/121015watsonactaviscmpt.pdf and https://www.ftc.gov/news-events/press-releases/2012/10/ftc-places-conditions-watson-pharmaceuticals-proposed-acquisition (accessed July 21, 2020).

21 Academic research (for example, Abrantes-Metz et al. (2005), and DiMasi et al. (2016)) has documented some important facts about both the costs, and the probabilities of success in different stages clinical trials, and how this differs across types of drug category, such as small molecules and biologics. Abrantes-Metz, Rosa M, Christopher Adams, & Albert Metz (2005), "Pharmaceutical Development Phases: A Duration Analysis," Journal of Pharmaceutical Finance, Economics and Policy, 14(4), 19-41. DiMasi, Joseph, Henry Grabowski, & Ronald Hansen (2016), "Innovation in the Pharmaceutical Industry: New Estimates of R&D Costs," Journal of Health Economics, 47, 20-33.

22 Olson, Luke & Brett Wendling (2018), "Estimating the Causal Effect of Entry on Generic Prices Using Hatch-Waxman Exclusivity," Review of Industrial Organization, 53, 139-172.

desire to eliminate future competition, in contrast to the discussed acquisitions where the overlaps were simply part of a much larger transaction, most of which did not raise competitive concerns. However, these results do not necessarily indicate a systematic failure of how the Commission assesses overlaps or effects on development incentives, as their results are most significant for transactions that are below standard HSR reporting thresholds, suggesting that many of these transactions may not have been scrutinized. This raises the important question of whether this is also true in other sectors, which has motivated on-going investigations into the nature of non-reportable transactions.[23]

### *Type 4: Both firms have well-defined products that are in development and not yet in the market*

These cases are distinguished from the previous group by the fact that neither firm is yet selling some form of the product of interest. Pharmaceutical cases frequently fall in both Types 3 and 4. For example, in the *Actavis/Watson* (2012) case mentioned above, six of the drugs affected by the asset divestitures were under development by both parties, and in *Impax/CorePharma* (2016), the Commission required the divestiture of generic pilocarpine assets because Impax and CorePharma were the only firms that were close to having developed products that could enter a market in which there were only two other existing generic suppliers.[24] For these transactions, the fact that there are well-established estimates for how additional generic entrants affect prices is a helpful part of the analysis.

In these cases, it is sometimes necessary to understand the balance between the anticompetitive incentive that will exist to drop one of the development projects, and the possible gains that may result from combining the projects which make it more likely that at least one product will be brought to market. In the case of generic pharmaceuticals, where the ultimate products would be identical, the anticompetitive incentive may be especially strong. Yet there also are cases where agencies have recognized the possible benefits of consolidation. For example, the 2006 Horizontal Merger Commentary[25] gives the example of the investigation into the consummated *Genzyme/Novazyme* merger. The investigation was closed "in part, [due] to the evidence supporting the claim that the merger would accelerate development of" drugs that were designed to treat Pompe's disease, a rare but fatal condition.[26]

In Type 4 cases, product market competition may be further away, and a review has to take into account a number of possible outcomes. For example, the best outcome would be that both products are developed and brought to market by two separate firms who will then compete aggressively on pricing. On the other hand, it is also possible that, without a merger, no products will make it to market. Therefore, an assessment has to balance how the merger will affect the probabilities of these different outcomes.

There are also cases where concerns about the development of future products by both parties are combined with concerns about current product market competition. For example, the Department of Justice's 2016 complaint against the proposed *Halliburton/Baker Hughes* transaction argued that, in addition to competing for current business, the Big 3 oil services firms (the parties and Schlumberger) "compete to win the business of exploration and production ("E&P") companies and to develop next generation technologies that will allow them to drill deeper and operate in ever-more challenging conditions."[27] The complaint described, for example, the market for integrated refracturing services as a nascent market, where only the Big 3 firms could be expected to develop a complete solutions package. In this case, the Department of Justice framed its case in terms of prior competition to develop solutions for customers, for example, for drilling in extreme deepwater, as well as their market shares in currently providing the complicated products.

Cases that fit into the earlier types can also have elements of this type when it is expected that both firms will continue to improve their technologies. For example, the UK's Competition and Markets Authority's ("CMA") preliminary findings on *Illumina/PacBio* argued that future innovation would be important, and, in particular, would result in short and long-read gene sequencing technologies being likely to compete more directly in the future.[28] This view required both an assessment of the technologies that the parties would develop, but also the needs of customers engaging in areas of research that were currently evolving.

23 For example, the FTC requested information on non-reportable transactions as part of a 6(b) study of several technology and platform companies (https://www.ftc.gov/reports/6b-orders-file-special-reports-technology-platform-companies). Wollmann (2020) also finds evidence of anticompetitive effects for dialysis center mergers, which appear to be non-preemptive, below HSR reporting thresholds.

24 https://www.ftc.gov/news-events/press-releases/2015/03/ftc-requires-divestitures-connection-impax-laboratories-incs (accessed July 21, 2020).

25 https://www.ftc.gov/sites/default/files/attachments/mergers/commentaryonthehorizontalmergerguidelinesmarch2006.pdf (accessed July 21, 2020).

26 In 2019, the Commission also concluded that the merger of Roche and Spark would not reduce the incentives of the merged firm to develop either Spark's development of a gene therapy treatment for hemophilia A. https://www.ftc.gov/system/files/documents/public_statements/1558049/1910086_roche-spark_commission_statement_12-16-19.pdf (accessed August 27, 2020).

27 https://www.justice.gov/atr/file/838661/download (accessed July 21, 2020).

28 https://assets.publishing.service.gov.uk/media/5db1b98a40f0b609ba817d38/Illumina_Pacbio_-_ProvFindings.pdf (see, in particular, Chapter 8).

***Type 5: Both firms are active in developing products, but it is unclear what form those products would ultimately take.***

The final type of case involves cases where both parties are in the process of developing new products, but it is unclear what form those products might take, and therefore how closely those products would compete even if the development projects are successful. These cases may arise in settings where technology or the needs of customers is changing, and all firms, including the parties, are trying to develop solutions.

The FTC's decision in *Nielsen/Arbitron* (2013) provides an example of this type of preemptive merger.[29] Nielsen and Arbitron were near-monopoly providers of television and radio ratings respectively, and did not compete directly for the business of advertisers and advertising agencies. However, the FTC's complaint expressed the concern that the merger would eliminate competition in the development of a "national syndicated cross-platform audience measurement service because only Nielsen and Arbitron maintain large, representative panels capable of measuring television with the required individual-level demographics, the data source preferred by advertisers and media companies." The Commission allowed the merger to proceed, but required the merged firm to divest and license certain assets to comScore, which had partnered with Arbitron in a project to measure audiences across multiple media platforms.

Commissioner Wright dissented from the Commission's decision in *Nielsen/Arbitron* on the grounds that, without information or predictions on factors such as the substitutability of different products, "our current economic toolkit provides little basis from which to answer accurately the question of whether a merger implicating a future market will result in a substantial lessening of competition."[30] This view highlights the key issue for these types of cases, which is that predictions about future competition absent the merger require not only an analysis of future incentives, which is something that is typically done in prospective merger analysis, but also much greater speculation about how early-stage technologies, and the demand of customers, are likely to develop. For example, one might question whether "national syndicated cross-platform audience measurement services" would ultimately form a relevant market, and whether firms that developed products in this space would necessarily cover the same set of platforms, rather than offering sets that might be complementary.

The differences between this fifth type of case and the third and fourth types of cases are really matters of degree. In Type 3 and Type 4 cases, one needs to take a view of whether particular well-defined projects are likely to be successful, and it is at least plausible that the documentary evidence may provide relatively consistent evidence on this subject. On the other hand, for Type 5 transactions, a greater degree of speculation about the broad capabilities of products that will be developed is required, and it is more likely that documents may disagree about which kinds of development are more promising or likely. For example, there may be dissenting views about whether the firms really would develop products that would complete closely for similar customers if they were brought to market. However, in the case of *Nielsen/Arbitron*, the fact that the parties were the only firms currently with broad ratings panels was one known factor that the Commission was able to use to argue that these firms were especially well-positioned to develop new, competing products.

## IV. CONCLUSION

We have provided a typology of different types of merger cases that involve firms that might be expected to compete more intensely in the future absent the transaction, trying to make useful distinctions based on the types of evidence that might be used and the degree of speculation that is required about what may happen to technology, as well as incentives, in the future.

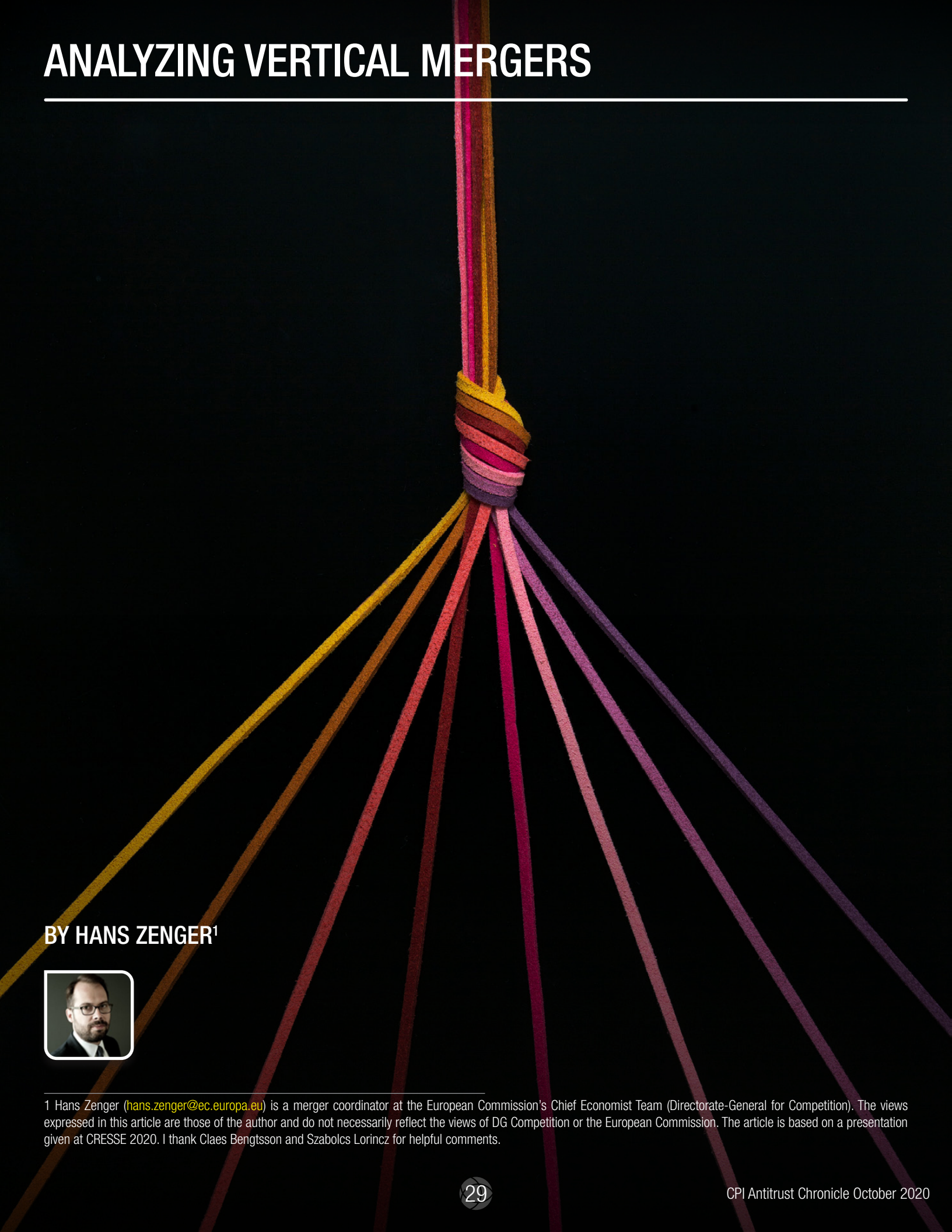
Cases requiring more speculation also present challenges when trying, several years later, to infer whether enforcement decisions in individual cases were correct because some speculation will also be required to determine what would have happened if different enforcement decisions had been made. For example, consider two cases where a merger is allowed to proceed. If a merger is consummated and a product in development is not brought to market, then it may well be unclear whether this was because of how the merger changed the incentives of the merging firm, resulting in a killer acquisition, or simply because of the type of failure that could have occurred absent an acquisition. On the other hand, when the merged firm successfully develops multiple products which gain large market shares, it may appear that the merger contributed to market power, whereas, of course, an alternative interpretation is that the agencies correctly identified that, in this particular case, the proposed transaction resulted in a firm with greater capabilities to develop successful products. Therefore, we look forward to seeing more research which provides agencies with tools to assess preemptive mergers both prospectively and retrospectively.[31]

29 https://www.ftc.gov/system/files/documents/cases/140228nielsenholdingscmpt.pdf (accessed July 21, 2020).

30 https://www.ftc.gov/sites/default/files/documents/cases/2013/09/130920nielsenarbitron-jdwstmt.pdf (accessed July 21, 2020).

31 Federico, Giulio, Fiona Scott Morton, and Carl Shapiro (2020), "Antitrust and Innovation: Welcoming and Protecting Disruption," *Innovation Policy and the Economy*, 20(1), 125-190.

# ANALYZING VERTICAL MERGERS



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# I. INTRODUCTION

Following *AT&T/Time Warner* and the recent adoption of U.S. Vertical Merger Guidelines, vertical merger policy has again become a subject of intense debate.[2] Some commentators have argued that vertical merger enforcement is too lax and should be invigorated, in particular in the U.S.[3] Others see a greater risk of false positives and argue that the standard for intervention should remain high in such cases.[4] Against this background, this article discusses the economics of assessing vertical mergers with a particular emphasis on recent European case practice.

Like much of the debate, the article focuses on input foreclosure, the most common theory of harm in vertical mergers. Input foreclosure denotes the deterioration of access conditions to a critical input for downstream rivals of an integrated firm. It includes practices such as raising the input's price, reducing its quality or limiting the quantity offered to competitors.[5] Vertical integration may create an incentive to engage in such conduct since worsening access conditions makes rivals less competitive against the merged entity's own downstream unit.

The article is structured as follows. Section II summarizes the basic principles of identifying input foreclosure. Section III discusses the interaction between different vertical effects. Section IV describes the use of economic models in vertical analyses. Finally, Section V characterizes specific settings where anti-competitive effects are likely to outweigh potential benefits of integration.

# II. PRINCIPLES OF VERTICAL MERGER ANALYSIS

The basic principles of assessing vertical mergers are set out in the Commission's Non-Horizontal Merger Guidelines.[6] When these Guidelines were issued in 2007, they marked a material departure from a relatively strict and form-based prior case practice. In its place, the Guidelines established a significant standard of proof based on effects-based analysis.[7] Moreover, they expressly acknowledged the potential pro-competitive benefits of vertical integration.[8] Even so, the Commission did not switch from one extreme to the other. While vertical intervention cases remain appreciably rarer today than horizontal cases, the Commission has continued to actively pursue vertical merger enforcement.[9]

When assessing whether a merger may lead to anti-competitive foreclosure, three conditions have to be established:[10] First, whether the merged entity will have the ability to foreclose. Second, whether it will have an incentive to foreclose. And, finally, whether foreclosure would lead to competitive harm in the downstream market.

*Ability to foreclose*. The ability to foreclose downstream rivals requires that the merged entity control a critical input. I.e. the input must be important for downstream competition, and the merged entity must have significant market power over it.[11] Besides a material share of value, critical inputs are often characterized by high profit margins, which reflect the fact that customers cannot easily switch to alternative providers. Other, less direct, indicators of upstream market power may include high market shares or limited spare capacity of competing suppliers.

*Incentive to foreclose*. Vertical integration may create an incentive to raise input prices toward third parties, since this makes the merged downstream unit more competitive against those firms. Put differently, RRC exerts a positive externality on the new downstream partner, who will recapture some of the lost sales after a price increase targeting rivals.

2 *U.S. v. AT&T Inc.*, Case 1:17-cv-2511 (D.D.C., February 2, 2018); U.S. Department of Justice & Federal Trade Commission, Vertical Merger Guidelines (June 30, 2020).

3 E.g. see Steven C. Salop, *Invigorating Vertical Merger Enforcement*, 127 Yale L.J. 1962 (2018).

4 E.g. see Michael A. Salinger, Comments on the DOJ and FTC Draft Vertical Merger Guidelines (February 2020).

5 In EU antitrust practice, price increases are usually referred to as "partial foreclosure," whereas refusals to supply are referred to as "total foreclosure." The U.S. Guidelines instead use the terms "raising rivals' cost" ("RRC") and "foreclosure." As total foreclosure is equivalent to an infinite price increase, it is ultimately a special case of partial foreclosure. I therefore sometimes use the terms "raising price" or "RRC" as a shorthand for more general foreclosure strategies.

6 European Commission, Guidelines on the assessment of non-horizontal mergers under the Council Regulation on the control of concentrations between undertakings, 2008 O.J. (C 265) 6 [hereinafter Guidelines].

7 *Id.* ¶¶ 29, 32.

8 *Id.* ¶¶ 11-14.

9 Recent case examples are discussed in Sections IV and V below.

10 Guidelines, *supra* note 6, ¶ 32. See more generally Carl Shapiro, Testing Vertical Mergers for Input Foreclosure, OECD (June 7, 2019).

11 *Id.* ¶¶ 34-35.

Therefore, a vertical merger is likely to cause material upward pricing pressure toward a rival if: (i) losing access to the input would cause a significant diversion of sales to the merged downstream business and (ii) if such downstream recapture would be profitable for the merged entity.[12] As in horizontal mergers, the main drivers of vertical price pressure are therefore high diversion ratios and profit margins.

Yet, measuring vertical diversion ratios (i.e. switches to the merged downstream business after an input price increase) can be more complex than in the horizontal case. E.g. vertical price pressure may not only induce switching in the downstream market but also in the upstream market (if foreclosed rivals can partially or fully substitute away from the critical input). Therefore, it is necessary to determine to which extent such upstream diversion might dilute the downstream diversion to the merged entity. This is not always straightforward.

In some cases, firms' internal documents contain estimates of customers' propensity to switch. E.g. in *Telia/Bonnier Broadcasting*, the Commission was able to rely on internal quantifications of expected departure rates after a black-out.[13] In other cases, there may be evidence of past switching after price increases or loss of access to a critical input.[14] In the absence of such direct evidence, the size of firms' margins can provide an indication of the likely direction of switching. E.g. when downstream margins are low, whereas upstream margins are high, then this indicates that downstream demand is elastic, whereas upstream demand is inelastic. In that case, foreclosure is likely to cause significant downstream diversion with only limited upstream dilution.

*Competitive harm*. For foreclosure to be a concern, it must cause competitive harm in the downstream market.[15] In other words, there must not merely be harm to competitors, but to competition and hence consumers. This requires (i) that the merged entity will face only limited competition from rivals that are not subject to foreclosure (e.g. other integrated firms) and (ii) that the upward pricing pressure caused by RRC is not overturned by downward pricing pressure from the elimination of double marginalization ("EDM") or other efficiencies.[16]

Indeed, the merged downstream unit may have an incentive to compete more aggressively post-merger, since additional downstream sales will also tend to increase demand for the upstream input. Such EDM is likely to be material if (i) incremental downstream sales would generate significant new demand for the upstream input (e.g. because of untapped demand for the integrated product among previous non-consumers) and (ii) if upstream margins are significant, so such additional sales would materially contribute to profits.

## II. VERTICAL EFFECTS INTERACT

The approach described in the previous section allows structuring the assessment of vertical mergers in a practical way. Even so, it is important to realize that ability, incentive, and harm are not independent elements that can be regarded in strict isolation. As the Guidelines point out, the assessment of vertical effects is ultimately an integrated analysis, as different components of the test may affect each other.[17] This section therefore discusses some of those interactions.

*Interaction between EDM and RRC*. Note that the pro-competitive incentive for EDM derives from the same externality consideration as the anti-competitive incentive for RRC. Just as raising upstream prices tends to benefit the merged downstream unit, lowering downstream prices tends to benefit the merged upstream unit. Contrary to horizontal mergers, efficiencies in vertical mergers are therefore not a structurally separate element from unilateral effects but are merely the flipside of the same optimization mechanism.

As a result, EDM and RRC can appreciably affect one another. Recent literature has emphasized that when EDM is significant, then this tends to reduce RRC incentives, because lower own prices render downstream diversion less profitable for the merged entity.[18] The authors show

12 *Id.* ¶¶ 41-42.

13 Case M.9064 *Telia Company/Bonnier Broadcasting Holding* (Commission decision of November 12, 2019).

14 E.g. in *Telia/Bonnier Broadcasting*, the Commission also assessed diversion ratios after a contemporaneous supply shock, as Telia had made the distribution of some of its premium content exclusive.

15 Guidelines, *supra* note 6, ¶¶ 16, 32.

16 *Id.* ¶¶ 50, 52.

17 *Id.* ¶¶ 21, 32.

18 See Gopal Das Varma & Martino De Stefano, *Equilibrium Analysis of Vertical Mergers*, 65 Antitrust Bull. 445 (2020); Ugur Akgün, Cristina Caffarra, Federico Etro & Robert Stillman, *On the welfare impact of mergers of complements: Raising rivals' costs versus elimination of double marginalization*, 195 Econ. Letters (forthcoming); David S. Sibley & Gleb B. Domnenko, *Simulating Vertical Mergers and the Vertical GUPPI Approach*, Rev. Ind. Org. (forthcoming).

that if EDM is sufficiently strong, then not only the merged entity's downstream prices may decrease in equilibrium, but even its upstream prices toward rivals. I.e. there is no trade-off between pro- and anti-competitive effects in equilibrium as all prices decrease.

While this is an important insight, there are also limits to its applicability. E.g. the result is based on models that assume a particularly strong form of double marginalization. Specifically, the above papers consider markets where double mark-ups are so large that pre-merger prices are even higher than the integrated monopoly price. As a result, EDM is very large in those models to bring prices back toward monopoly levels.

However, in less extreme situations, the reverse outcome is equally possible: If RRC is sufficiently strong, then a vertical merger may not only increase the upstream prices charged to rivals but may also raise the merged entity's downstream prices. I.e. in equilibrium there is again no trade-off between pro- and anticompetitive effects as all prices increase.[19] This reverse result may arise because significant RRC incentives tend to weaken EDM, since RRC softens the competitive pressure the merged downstream unit is exposed to. In short, the relation between RRC and EDM is a two-way interaction in which either effect may suppress the other if it is sufficiently strong. While EDM is often substantial in standard economic models, its concrete significance in a given transaction must therefore be assessed on a case-by-case basis.

*Interaction between ability and effects*. There is also an important interaction between the ability to foreclose and the likely effects of a vertical merger. Indeed, a greater ability to foreclose tends to entail larger competitive risks. From a purchaser's perspective, there is a considerable difference whether that firm merely risks facing somewhat higher input costs or whether it could be put out of business by losing access to an indispensable input. Unsurprisingly, therefore, businesspeople tend to be highly wary about such dependencies when their supplier starts competing with them in the downstream market.

A large ability to foreclose may thereby also act as a significant barrier to entry, since potential entrants may be reluctant to expose themselves to a risk of foreclosure (even if such foreclosure might not eventually materialize). Such considerations can be particularly important in industries with important scale effects, such as technology markets, where foreclosure concerns are often motivated by dynamic considerations.[20]

From an error-cost perspective, a greater ability to foreclose therefore affects the standard of evidence against which foreclosure risks should be assessed. Since a greater economic dependency involves larger competitive risks, the evidence required to dismiss vertical concerns should arguably be more demanding when the merged entity controls a dominant input. Indeed, the social costs of false acquittals are particularly large in that case.

*Interaction between margins and diversion*. Finally, a frequently misunderstood interaction in vertical mergers is the relationship between profit margins and diversion ratios. As the Guidelines correctly observe, "*Other things constant, the lower the margins upstream, the lower the loss from restricting input sales.*"[21] In other words, if the merging upstream firm is not very profitable, then losing some input sales from the foreclosure of rivals will not be too damaging for the merged entity.

Merging parties sometimes (conveniently) interpret this passage as suggesting that the overall foreclosure risk must be low if the merging upstream firm has significant margins. However, as indicated by the qualifier "other things constant," the opportunity cost of lost sales is not the only parameter that matters for foreclosure incentives.

Instead, high upstream margins also suggest that demand for the foreclosed input is inelastic (i.e. that it faces limited competition). Higher upstream margins therefore indicate that it is easier for the merged entity to divert sales to its downstream unit, as purchasers cannot easily replace the critical input. On balance, problematic vertical mergers thus tend to involve non-negligible upstream margins.[22] This reflects the fact that foreclosure requires some upstream market power that can be leveraged into the downstream market.

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19 We discuss concrete examples in Section V below. See also Das Varma & De Stefano, *supra* note 18, Table 2 (showing that less pronounced double mark-ups increase the scope for competitive harm in their bargaining model).

20 E.g. see Case M.8394 *Essilor/Luxottica* (Commission decision of 1 March 2018) where the Commission investigated whether the merged entity might have an incentive to foreclose third parties to undermine their ability to exploit scale economies.

21 Guidelines, *supra* note 6, ¶ 41.

22 E.g. see Roman Inderst & Tommaso Valletti, *Incentives for Input Foreclosure*, 55 Eur. Econ. Rev. 820 (2011).

## IV. USING MODELS TO ASSESS FORECLOSURE INCENTIVES

Since vertical effects are often complex, it can sometimes be instructive to use economic models to help assess their competitive impact. In recent case practice, the Commission has considered different economic models, depending on data availability and suitability in the context of a given case.

*Vertical arithmetic*.[23] Vertical arithmetic ("VA") is the simplest form of quantitative analysis in vertical mergers and is regularly submitted to the Commission in vertical cases.[24] VA considers whether total foreclosure of rivals would be profitable given the margins earned by the merging firms and the expected diversion ratio from foreclosed rivals to the merged entity.

The great benefit of VA is that it is easy to apply. But unfortunately, it also has significant limitations. In particular, VA only considers total foreclosure, although it is typically more profitable for a merged firm to engage in partial foreclosure. Moreover, VA takes price levels as given, although vertical mergers may change equilibrium prices considerably (e.g. due to EDM). As a result, VA can only provide indicative evidence about foreclosure incentives.[25]

VA may nonetheless convey useful insights, as it can be thought of as a simplified version of more comprehensive economic models that require more extensive information. E.g. VA can be expressed as a simple vGUPPI test with a specific safe harbor.[26] VA can therefore be useful to identify clearly unproblematic transactions (if the test is passed by a large margin) or to provide a first quantification for potentially problematic mergers that can later be supplemented (or replaced) with more extensive qualitative and/or quantitative analyses.

*vGUPPIs*.[27] In order to capture pricing incentives more accurately, the vGUPPI model was developed. This model was recently considered, for instance, in *EssilorLuxottica/GrandVision* and in the UK *Tesco/Booker* decision.[28] vGUPPIs are an extension of the well-known price pressure methodologies that are commonly used in horizontal mergers.[29] As in the horizontal case, vGUPPIs can be very helpful to identify and measure the main factors that determine post-merger pricing incentives. But since vertical transactions involve an interaction across upstream and downstream markets, such price pressure analyses can be appreciably more involved than in the horizontal case.

In contrast to VA, vGUPPIs also incorporate a direct measure of potential pro-competitive incentives resulting from EDM. As vGUPPIs measure incentives for RRC and EDM separately, however, a potential limitation of the model is that it abstracts from feedback effects between RRC and EDM (see Section III).

*Bargaining leverage*.[30] In cases that involve bargained rather than posted wholesale prices, one can instead use the bargaining leverage model to calibrate the potential for upward pricing pressure resulting from a vertical merger. Such a model was prominently applied in the recent *AT&T/Time Warner* case in the U.S.[31] At the Commission, bargaining models were recently relied on, for instance, in *Liberty/De Vijver* and *Telia/Bonnier Broadcasting*.[32]

The bargaining leverage model provides a simple yet instructive way of gauging RRC incentives. A potential limitation of the model is that it is not straightforward to integrate a complete analysis of EDM (short of extending it to a fully-fledged merger simulation). However, as in the

23 E.g. see Russell Pittman, Three Economist's Tools for Antitrust Analysis: A Non-technical Introduction (Working Paper, January 2017).

24 E.g. see *Telia/Bonnier Broadcasting*, *supra* note 13 and Case M.8900 *Wieland/Aurubis Rolled Products* (Commission decision of February 5, 2019) for recent examples.

25 Concretely, VA will tend to be too permissive if EDM is moderate (as VA underestimates partial foreclosure incentives). Conversely, VA will tend to be too strict if EDM is large (as it does not account for EDM).

26 See Serge Moresi & Steven C. Salop, *vGUPPI: Unilateral Pricing Incentives in Vertical Mergers*, 79 Antitrust L.J. 185 (2013).

27 *Id.*

28 Case M.9569 *EssilorLuxottica/GrandVision; Tesco PLC/Booker Group plc* (CMA decision of December 20, 2017).

29 For a recent survey, see Tommaso Valletti & Hans Zenger, *Mergers with Differentiated Products: Where do we Stand?*, Rev. Ind. Org. (forthcoming).

30 William P. Rogerson, *Modelling and predicting the competitive effects of vertical mergers: The bargaining leverage over rivals effect*, 53 Can. J. Econ. 407 (2020).

31 See Expert Report of Carl Shapiro in *U.S. v. AT&T Inc.*, Case 1:17-cv-2511 (D.D.C., February 2, 2018), available at www.justice.gov/atr/case-document/file/1081336/download.

32 Case M.7194 *Liberty Global/Corelio/W&W/De Vijver Media* (Commission decision of February 24, 2015); *Telia/Bonnier Broadcasting*, *supra* note 13.

case of vGUPPIs, it is possible to separately measure the downward pricing pressure caused by EDM (thus abstracting from possible feedback effects between RRC and EDM).[33]

*Full merger simulation*.[34] Vertical merger simulation fully accounts for the interaction between upward and downward pricing pressures in vertical mergers. Such an analysis was considered, for example, in *ASL/Arianespace*.[35] However, this comes at the price that such analyses are often highly complex and can be sensitive to seemingly innocuous assumptions (e.g. on demand form) which can be hard to verify in merger control proceedings. The use of vertical simulation models therefore remains relatively rare in antitrust practice.

*Use of economic models*. In summary, when sufficient data is available, the use of quantitative models can be instructive to identify and measure key determinants of the competitive effects of integration. Given the complexity of vertical effects, such models are best viewed as supportive tools that aim to quantify relevant factors for foreclosure incentives. Their results can then be combined with other quantitative and qualitative evidence to support or reject the investigated theory of harm.

In many cases, already simple models such as VA can be helpful, e.g. to weed out implausible theories. In more contested cases, one can build on simple quantifications, e.g. by expanding them into more complex analyses, such as bargaining models or vGUPPIs. As we will discuss in the next section, such price pressure analyses can be particularly instructive when EDM is expected to be relatively moderate. This avoids a complex weighing of pro- and anti-competitive effects, thereby permitting a particularly robust inference.

## V. ANTICOMPETITIVE VERTICAL MERGERS

As discussed in the previous section, vertical simulation can be sensitive to details of the economic context. Moreover, in standard economic models, EDM is often significant and may overturn (or substantially attenuate) RRC incentives in many cases.[36] This theoretical prediction seems broadly in line with the empirical evidence on vertical integration. While ex-post studies show that vertical mergers can be an important source of anti-competitive effects, they also indicate that a significant proportion of vertical mergers does not cause competition problems.[37]

Even so, a number of important economic settings exist where anticompetitive effects are likely to dominate the potential benefits from integration. Theories of vertical harm are particularly compelling in settings with little or no EDM, as the need for a complex balancing can then be avoided (and feedback effects are likely to be negligible). This section will therefore provide examples of such classes of cases, based on recent European case practice.

*Diagonal mergers*. An important class of cases where incentives for RRC tend to dominate EDM arises when the foreclosed input is used more intensively by rivals than by the merging downstream firm itself. Such transactions are sometimes called "diagonal mergers," because there is only a limited vertical link between the merging firms. Accordingly, the scope for EDM is also small.

For instance, the Commission pursued such a case in *Deutsche Börse/LSEG*, a transaction that was ultimately blocked.[38] In one of the affected markets, Deutsche Börse was acquiring a clearing house that served as an indispensable input for competing stock exchanges. Since Deutsche Börse was already vertically integrated into clearing, the transaction would have allowed the merged entity to substantially raise the costs of competing exchanges without generating any price-reducing efficiencies in return.

33 See Shapiro, *supra* note 31.

34 E.g. see Gloria Sheu & Charles Taragin, Simulating Mergers in a Vertical Supply Chain with Bargaining (Working Paper, 2020); Gregory S. Crawford, Robin S. Lee, Michael D. Whinston & Ali Yurukoglu, *The Welfare Effects of Vertical Integration in Multichannel Television Markets*, 86 Econometrica 891 (2018).

35 Case M.7724 *ASL/Arianespace* (Commission decision of July 20, 2016).

36 E.g. see Sibley & Domnenko and Akgün, Caffarra, Etro & Stillman, *supra* note 18.

37 Francine Lafontaine & Margaret Slade, *Vertical Integration and Firm Boundaries: The Evidence*, 45 J. Econ. Lit. 629 (2007); Marissa Beck & Fiona M. Scott Morton, Evaluating the Evidence on Vertical Mergers (Working Paper, April 8, 2020).

38 Case M.7995 *Deutsche Börse/London Stock Exchange Group* (Commission decision of March 29, 2017).

*Full market coverage*. A second situation where EDM is likely to be minor arises when the input in question is already used by most potential customers. In that case, the merging downstream firm will not be able to significantly expand demand for its upstream partner by lowering prices. Instead, any newly won downstream sales would merely cannibalize upstream sales via third parties. Hence, the incentive for EDM is small or absent in such settings.[39]

An example for this class of cases is the recent *Telia/Bonnier Broadcasting* merger, which was approved only subject to significant access remedies.[40] In this case, Telia, an important distributor of TV services, acquired TV4, the leading commercial TV channel in Sweden, as well as various other important channels owned by Bonnier Broadcasting. Since the market coverage of those channels was already close to ubiquitous, the Commission considered that EDM was unlikely to overcome the significant incentives for price increases that were predicted by a calibrated bargaining model.

*Contractual reasons for lack of EDM*. In some cases, EDM can also be ruled out because the merging parties were able to implement contractual solutions to overcome double marginalization pre-merger. This argument has to be handled with some caution, since such contractual solutions may equally eliminate the incentive to engage in RRC.[41] Even so, in a significant number of cases, contractual provisions may rule out EDM but not RRC.

For instance, in *Wieland/Aurubis*, a case that was ultimately prohibited, the merging parties were already in a joint venture pre-merger.[42] The Commission found that the JV's pre-merger price structure ensured that double marginalization would not be an issue, as Wieland received incremental inputs at cost. Sales to third parties, however, had a fundamentally different price structure which did not attenuate the significant scope for RRC identified by the Commission.[43]

*Horizontal concerns undermining EDM*. Finally, EDM can also be ineffective in cases where vertical concerns are aggravated by horizontal overlaps. In such cases, horizontal upward pricing pressure may offset the vertical downward pricing pressure caused by EDM. *Wieland/Aurubis* is also a relevant example for this setting, since the transaction caused appreciable horizontal overlaps in the downstream market in addition to the vertical link discussed above.

In conclusion, these examples show that there are important classes of cases where the complexity of weighing RRC and EDM does not arise, since efficiencies are unlikely to be significant.[44] While many — indeed most — vertical mergers do not raise significant competition concerns, these classes of cases show that anti-competitive vertical mergers are neither intellectual aberrations, nor do they lack a potential for robust identification.

39 Strong market saturation is more likely to occur in settings with negotiated prices than in settings with posted prices. In the latter, an upstream firm with full market coverage would typically find it profitable to increase prices pre-merger and sacrifice some sales until demand becomes more elastic.

40 *Telia/Bonnier Broadcasting*, *supra* note 13.

41 E.g. while the use of two-part tariffs may prevent double marginalization, such schemes may also allow to effectively extract rents from downstream competitors, thus obviating the need to engage in RRC (at least with sufficient information on demand).

42 *Wieland/Aurubis*, *supra* note 24.

43 Specifically, the JV had operational independence as concerns the pricing toward third parties pre-merger. This independence would have been eliminated through the transaction, thus permitting Wieland to set wholesale prices that maximize the profits of the integrated firm.

44 The list was guided by recent intervention cases at the Commission and is not meant to be exhaustive. E.g. anti-competitive incentives will also tend to dominate EDM in cases with dynamic foreclosure concerns. See Jay Pil Choi, *Mergers with Bundling in Complementary Markets*, 56 J. Ind. Econ. 553 (2008).

# HIGHLIGHTS OF THE MUCH-AWAITED U.S. VERTICAL MERGER GUIDELINES

BY ANA SOFIA RODRIGUES[1]

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# I. INTRODUCTION

On June 30, 2020, the DOJ and the FTC issued the final version of the long awaited new Vertical Merger Guidelines ("VMG"). The guidelines aim at providing "*the principal analytical techniques, practices, and enforcement policy for vertical mergers.*"[2]

The document replaces the 1984 Non-Horizontal Merger Guidelines ("NHMG"), which did not experience any revision for over three decades. This is in sharp contrast with the Horizontal Merger Guidelines, which were reviewed three times (1992, 1996, and 2010), since the 1984 document was issued.

With few exceptions, there was wide consensus that the 1984 NHMG were outdated and in need of revision. The gap between the old guidance and the economic theory is obvious when recalling that the "post-Chicago" literature on vertical integration arose around the time the 1984 NHMG were issued.[3]

Drafting guidelines is a challenging process and more so for vertical mergers because of the interdependence between harms and benefits. That is not to say that vertical mergers cannot do any harm or that they should be presumed pro-competitive and social welfare increasing. The new VMG rightly stay away from pro-competitive presumptions regarding vertical mergers.

Most notably, the new VMG are issued in the aftermath of the District Court and the Appeals Court decisions on the first vertical merger litigated in the US, in the last 40 years – the *AT&T/Time Warner* case. These decisions raise important points of discussion regarding several key aspects of vertical mergers´ competitive assessment – from the treatment of the elimination of double marginalization ("EDM") to the bargaining models that assist the assessment. The VMG must have inevitably been influenced by the unfolding of *AT&T/Time Warner*.

There are, however, further relevant trends that surround the release of the new VMG. I would highlight, in particular, the digitalization of the economy and the debate regarding competition law enforcement in labor markets.

In what follows, I discuss some highlights of the new VMG, with the backdrop that I just described.

# II. HIGHLIGHTS OF THE NEW VMG

### *A. Elimination of Double Marginalization – "Special" Efficiencies?*

The first topic I would highlight concerns EDM.

EDM results from internalizing a pricing externality. When EDM is present, it should be treated as flowing from the alignment of incentives between the merged entity upstream and downstream divisions. On this regard, the new VMG state that "*it arises directly from the alignment of economic incentives between the merging firms.*"[4]

However, EDM needs not to follow from vertical integration in all industries. EDM depends crucially on modelling assumptions, such as linear pricing, but need not be present in models with more general pricing rules. There are several market circumstances in which EDM would not result from a merger.[5] Thus, EDM cannot be treated as an automatic inevitability of mergers in all industries.

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2 Press Release, Draft vertical merger guidelines, public-comment.

3 E.g. Salop & Scheffman, (1983), "*Raising Rivals' Costs: Recent Advances in the Theory of Industrial Structure*," American Economic Review, Vol. 73(2). Salop & Scheffman (1987), "*Cost-raising Strategies*," Journal of Industrial Economics Vol 36 (1); and Salinger (1988), "*Vertical Mergers and Market Foreclosure*," The Quarterly Journal of Economics, Vol 103 (2).

4 New VMG, page 11.

5 See Hatzitaskos, Majure, McDowall, & Nevo, "*Comments on the January 2020 Draft Vertical Merger Guidelines*," February 19, 2020; and Baker, Rose, Salop & Morton, "*Recommendations and Comments on the Draft Vertical Merger Guidelines*," February 24, 2020. See also, Slade and Kwoka (2020), "*Second Thoughts on Double Marginalization*," Antitrust, Vol. 34 (2).

The most relevant issue regarding EDM is on merger specificity. EDM can sometimes be achieved through contractual arrangements with non-linear pricing, such as two-part tariffs. The draft VMG acknowledged this explicitly, stating that "[t]*he effects of the elimination of double marginalization may be lower if, prior to the merger, the merging parties already engaged in contracting that aligned their incentives.*"[6] In the final version of the VMG, however, this statement was eliminated, and the agencies focus the guidance on evidence that may be relevant regarding EDM's merger specificity, such as "*existing contracting practices*" and "*contracts between similarly situated firms in the same industry and contracting efforts considered by the merging firms.*"

Just like with other merger efficiency claims, the burden of demonstrating EDM lies on the merging parties. However, the new VMG also state that the agencies "*do not, however, reject the merger specificity of the elimination of double marginalization solely because it could theoretically be achieved but for the merger.*"[7] Can this read as, if no incentive-aligning contracts exist pre-merger, by default, EDM is presumed to be merger specific? Is this a presumption that flips the burden of proof on to the agencies?

This aspect of the VMG is probably the most debated in what regards EDM. In particular, it raises important questions as to the practical treatment of EDM by the US agencies. It also touches upon a topic that has triggered different views within the competition community. Most notably, Steven Salop is among those arguing for EDM as deserving no "special" treatment in terms of burden of proof *vis-à-vis* other cognizable efficiencies. On the other side, with Geoffrey Manne among the most vocal, are those claiming that the latter approach abstracts from practical realities concerning bargaining environments and overestimates the outcomes of contracting.[8]

But, in fact, we know that the failure to reach EDM in the pre-merger world does not necessarily mean that contractual agreements are out of reach as an alternative to a vertical merger. The burden of demonstrating merger specificity of EDM should thus fully remain on the merging parties' shoulders.

### *B. (Digital) Conglomerates: The (Shy?) Inclusion in the Final Version of the VMG*

One of the most noticeable aspects of the draft VMG was the absence of an explicit reference to complementary products mergers. The draft VMG coverage was, or could be seen as being, limited to mergers concerning vertically related products. Indeed, in the draft VMG, related products were defined as "*a product or service that is supplied by the merged firm, is vertically related to the products and services in the relevant market, and to which access by the merged firm's rivals affects competition in the relevant market."*[9]

This absence triggered several comments during the public consultation naming this as a big miss in the draft VMG. As a result, contrary to the draft document, the final text explicitly states that the guidance applies to a "*range of non-horizontal transactions*," including "*diagonal*" mergers, thus staying away from the narrow applicability to vertical deals.[10]

The introduction of other non-horizontal mergers in the scope of the VMG is certainly warranted, particularly in the context of the digital economy. Indeed, if one could name only one advent as the most prominent since the VMG were first issued in 1984 that would have to be the digitalization of the economy. But the main question is whether the VMG provide guidance as to the specificities of conglomerate mergers in the digital era.

Complementarities, network effects, economies of scope and sharable inputs are all relevant in the digital economy. The main source of competition left to discipline large digital conglomerates that are otherwise shielded from competition is often that of potential entry. Dominant platforms may seek to protect incumbency profits through pre-emptive mergers aimed at eliminating potential competition.

As a result, conglomerate theories of harm have gained an added relevance in the context of the digital economy. Novel theories of harm have developed (see, e.g. Bourreau & de Streel, 2019).[11] In digital markets, an adjacent product or service can often be a privileged, or the only,

6 Draft VMG, page 7.

7 New VMG, page 12.

8 See, for example, the Comments of ICLE on the Draft Vertical Merger Guidelines.

9 Draft VMG, page 2.

10 New VMG, page 1.

11 Bourreau & de Streel (2019), "Digital Conglomerates and EU Competition Policy."

entry point to an otherwise closed digital platform or ecosystem. Digital conglomerates may pursue a merger policy driven by strategic incentives to eliminate threats to the incumbent platform or ecosystem through envelopment of their small competitors. Furthermore, the interest of these new theories of harm has gained added thrust with empirical evidence showing that circa 60 percent of all the firms acquired by Google, Amazon and Facebook were four-year-old or younger when they were acquired by these digital giants (Argentesi et al, 2019).[12]

Given that these novel theories of harm are not addressed in the guidelines, the approach of the agencies to these issues will have to emerge from decision making.

### *C. A Closure to the AT&T/Time Warner Saga?*

The new VMG were issued a little over a year on from the U.S. Court of Appeals decision upholding the District Court ruling, signed by Judge Leon, in favor of the defendant. The decisions cleared the way for the *AT&T/Time Warner* deal to go ahead. The merger had been challenged by the DOJ on the grounds of a raising rivals' costs theory of harm.

Among the several points of criticism laid down on Judge Leon's ruling regarding the case put forward by the DOJ, there are two that are particularly relevant from the point of view of the fundamental economic principles underlying vertical mergers' competition assessment.

The first point has to do with the treatment given in the ruling to the extent in which profits from the upstream and downstream divisions are integrated to govern strategic decisions. In particular, the ruling relies on statements from business representatives to conclude that the downstream division's (DirectTV) profits would not be considered by the upstream division (Turner) of the merged entity, thus softening concerns with the raising rival's costs theory of harm. However, by the same token, the rational for EDM would be broken, as the incentive alignment that may follow from vertical mergers would not occur. But the ruling does not extract the necessary consequents of accepting that argument for the treatment of EDM, leading to an inconsistency.

The view that vertically integrated entities have no regard for joint profits is at odds with the economic literature and with the empirical evidence. Crawford et al (2018),[13] for example, estimate, with a structural model of the multichannel television industry, that a vertically integrated distributor internalizes $0.79 of each dollar of profit accrued by the upstream vertically integrated channel, and that regional sports networks fully account for the gains, to the downstream division, of denying access to content to rival distributors.

The second point has to do with the dismissiveness regarding the Nash bargaining model used by the DOJ to represent the negotiations between content providers and content distributors. In particular, the ruling deems the threats of blackouts, and thus their role in leveraging the ability of the content provider to obtain more favorable terms from the negotiation, as not credible because of the costs a long-lasting blackout would bring to the content provider.

These two points, and how they abstract from well-established economic theory, are illustrative of the relevance of guidance and the need for pedagogy, and intensified the calls for an update of merger guidance. And, indeed, both of these issues are addressed in the final version of the VMG.

The interdependence between EDM and the raising rivals' costs theory of harm are explicitly addressed in the new VMG. In particular, the VMG now state that EDM arises from incentive alignment and that "*the same source drives any incentive to foreclose or raise rivals' costs*," such that the evidence to assess EDM and the harm resulting from the merger overlap substantially.[14]

The draft version of the guidelines was notoriously scant on bargaining theory. However, the topic was densified in the final version of the new VMG. The document, however, does not explicitly address the logic of threat points, and that they need not have to materialize to provide leverage in a bargaining negotiation.

12 Argentesi, Calvano, Buccirossi, Duso, Marrazzo & Nava (2019), "*Merger Policy in Digital Markets: An Ex-Post Assessment*" CESifo WP No. 7985.

13 Crawford, Lee, Whinston & Yurukoglu (2018), "*The welfare effects of vertical integration in multichannel television markets*," Econometrica, Vol 86 (3).

14 New VMG, page 11.

The question surely is whether the guidelines are enough to resolve the scars left by the *AT&T/Time Warner* rulings. And I believe that, while they are a key step in cementing a well-established framework for the analysis of vertical mergers, the discussion would certainly benefit from an ex-post assessment of *AT&T/Time Warner*. Maybe this would bring closure to the saga.

### *D. A Side Note on Labor Markets*

Competition in the labor market has been in the spotlight of competition policy in the U.S. in recent years. The interest on the macroeconomic implications of market power has been prompted by the influential papers by De Loecker & Eeckhout (2017) and Autor et al. (2020),[15] associating the trends of increasing concentration and the decline in the labour share of GDP.

Furthermore, a number of papers (e.g. Marinescu & Hovenkamp, 2019[16]) have been published claiming that merger enforcement is overly focused on the supply side of products and services markets, and rarely on competition concerns driven by concentration in the buyer side of the market, in particular in labor markets.

At the agencies level, FTC Commissioner Phillips stated that "*the FTC has now made it standard practice to screen for harms from enhanced labor monopsony power as part of every merger review. This process has just begun.*"[17]

This U.S. trend is discernible in the public consultation launched by the agencies to the VMG. Among the comments submitted in the public consultation to the VMG are those of the major American labor unions. The unions argued that the draft ignored harm to workers, and called for labor market implications of mergers to be factored into the merger review.

The strengthening of labor monopsony power is, however, more of a potential concern in horizontal mergers than in vertical deals. There is no reference in either the draft or the final version of the VMG to labor markets. It is however noteworthy the addition in the final version of the guidelines comparing the harm from "*monopsony power*" to that of market power in the sellers' side, and clarifying that the agencies use an analogous framework for assessing vertical mergers that strengthen the market power of buyers.

## III. FINAL REMARKS

The vertical merger guidelines were issued in the midst of several calls for an invigorated merger enforcement. The public discussion that followed the release of the draft version in January 2020 was prolific and played an important role in shaping the final version of the document.

The document closes the gap between the U.S. agencies' assessment of vertical mergers and the guidance made available to the stakeholders. It incorporates the agencies practices for the recent past, but it does not uncover the veil on the approach to new challenges, in particular regarding the digital economy.

15 Autor, Dorn, Katz, Patterson & Van Reenen (2020), "*The Fall of the Labor Share and the Rise of Superstar Firms*," The Quarterly Journal of Economics, Vol 135 (2).

16 E.g. Azar, Marinescu, Steinbaum & Taska (2018), "*Concentration in US Labor Markets: Evidence from Online Vacancy Data*," Labor Economics, Vol 66; Marinescu & Hovenkamp (2019) "*Anticompetitive Mergers in Labor Markets*"Indiana Law Journal Vol 94 (3).

17 Prepared Statement of Commissioner Noah Joshua Phillips before the U.S. House of Representatives on Antitrust and Economic Opportunity: Competition in Labor Markets.

# THE POSSIBILITY OF SOCIAL-SURPLUS-REDUCING VERTICAL MERGERS

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# I. INTRODUCTION

The U.S. Department of Justice and Federal Trade Commission's "Vertical Merger Guidelines" (June 30, 2020) emphasize positive effects of vertical integration:[2] "Vertical mergers combine complementary economic functions and eliminate contracting frictions, and therefore have the capacity to create a range of potentially cognizable efficiencies that benefit competition and consumers" (p. 11). That said, they also recognize that "While the agencies more often encounter problematic horizontal mergers than problematic vertical mergers, vertical mergers are not invariably innocuous" (p. 2).

In this paper, we discuss and explain a remarkably general scenario in which a vertical merger reduces social surplus – that is, reduces the total value of the allocation that occurs in equilibrium. The results described here reflect findings in our recent paper called "Countervailing Power, Integration, and Investment under Incomplete Information," which provided the foundation for remarks made at CPI's online event "CRESSE Special Policy Session on Vertical Mergers: Enforcement Developments and Guidelines" (July 1, 2020).

# II. A VERY SIMPLE MODEL OF VERTICAL INTEGRATION

We begin by describing the simplest possible model of vertical integration. Assume that we have one upstream supplier and one downstream buyer. In the absence of vertical integration, there is a market process through which the buyer procures an input from the supplier.

Let us assume that the supplier's cost to produce the input is the supplier's own private information – that is, the supplier knows its own cost, but the buyer does not know that cost. The buyer only knows that the supplier's cost is somewhere between $1 and $10. And symmetrically, let us assume that the buyer's willingness to pay for the input is the buyer's own private information, but that it is common knowledge that the buyer's willingness to pay for the input is between $1 and $10.

What do we expect to happen here? Sometimes the buyer's willingness to pay will turn out to be less than the supplier's cost, and then, of course, there will be no trade. But even when the buyer's willingness to pay is greater than the supplier's cost, the two firms will not know that. They will negotiate with each other, each trying to get the best possible price. As we know, both from theory and from data, this bargaining process can break down even when there are gains from trade.[3] That is, because of the presence of private information, even when there are gains from trade, bargaining can fail to result in trade.

But now consider vertical integration by these two firms. In that case, the problem is, arguably, solved. Whenever the integrated firm can produce the input internally at a cost that is less than the downstream entity's value for the input, it will do so. Efficiency is restored.

2 Indeed, FTC Commissioner Rebecca Kelly Slaughter criticizes the Guidelines in her dissent for their "over-emphasis on the benefits of vertical mergers" and Commissioner Rohit Chopra states in his dissent that they "support the status-quo ideological belief that vertical mergers are presumptively benign, and even beneficial."

3 Foundational work by Myerson & Satterthwaite (1983) provides conditions under which efficient bargaining (i.e. bargaining that results in trade if and only if there are gains from trade) is not possible (see also Williams, 1987; Gresik & Satterthwaite, 1989). Empirical work that recognizes and quantifies inefficiency in bargaining includes Larsen (2020) for wholesale used cars and Backus et al. (2019, 2020) for eBay listings. Backus, M., T. Blake, B. Larsen & S. Tadelis (2020): "Sequential Bargaining in the Field: Evidence from Millions of Online Bargaining Interactions," *Quarterly Journal of Economics*, 135, 1319–1361. Backus, M., T. Blake & S. Tadelis (2019): "On the Empirical Content of Cheap-Talk Signaling: An Application to Bargaining," *Journal of Political Economy*, 127, 1599–1628. Gresik, T. & M. Satterthwaite (1989): "The Rate at which a Simple Market Converges to Efficiency as the Number of Traders Increases: An Asymptotic Result for Optimal Trading Mechanisms," *Journal of Economic Theory*, 48, 304–332. Larsen, B. J. (2020): "The Efficiency of Real-World Bargaining: Evidence from Wholesale Used-Auto Auctions," *Review of Economic Studies*. Loertscher, S. & L. M. Marx (2020): "Countervailing Power, Integration, and Investment under Incomplete Information," Working Paper, University of Melbourne. Myerson, R. & M. Satterthwaite (1983): "Efficient Mechanisms for Bilateral Trading," *Journal of Economic Theory*, 29, 265–281. Williams, S. R. (1987): "Efficient Performance in Two Agent Bargaining," *Journal of Economic Theory*, 41, 154–172.

## III. A VERY SLIGHTLY MORE COMPLICATED MODEL OF VERTICAL INTEGRATION

We now make two changes to the model. First, we move the range of the buyer's willingness to pay up to $20 to $25. Notice that now the range of the buyer's willingness to pay no longer overlaps with the range of the supplier's cost. With this change, it is always efficient for the buyer and supplier to trade because there are always positive gains from trade. And, second, we add another supplier whose cost lies somewhere between $1 and $10, so that now we have one buyer whose willingness to pay is between $20 and $25 and two suppliers with costs between $1 and $10.

In this setup, without integration, the buyer can hold a competitive procurement. Specifically, it can hold an auction and obtain bids from the two suppliers. For example, the buyer could hold a descending-price auction starting at a price of $10.[4] It could continue to lower the price until only one supplier remains active, and then buy from that supplier. That procurement process would be efficient – assuming competitive bidding, it would always result in trade between the buyer and the lowest-cost supplier.

In this model of the pre-vertical-integration market, we have one buyer and two suppliers, and the market is efficient because the buyer's procurement process always results in its purchasing from the lowest-cost supplier. With this as our baseline, we now consider what happens if the buyer vertically integrates with one of the suppliers.

Suppose that the buyer vertically integrates with supplier 1, leaving supplier 2 as an independent supplier. The vertically integrated firm could either produce the input internally at whatever supplier 1's cost is, or it could instead purchase the input from the independent supplier. Consider the question of how much the vertically integrated firm is willing to pay to purchase the input from the independent supplier. The vertically integrated firm is not willing to pay more than the cost at which it could produce the input internally. So now we have an integrated firm whose willingness to pay for the independent supplier's input is determined by its internal cost of production, which is some amount between $1 and $10. And, remember, the independent supplier's cost is also some amount between $1 and $10. So now we're are back in the situation that we first discussed. We have a buyer with a willingness to pay and a supplier with a cost that are drawn from the same range.

We know that bargaining in a setting like this is inefficient. Sometimes bargaining will break down and the vertically integrated firm will not purchase from the independent supplier even though the independent supplier has a lower cost than the integrated supplier. In that case, the buyer will turn to internal supply even though the internal supplier has a higher cost. The buyer will source internally in some cases when it would be more efficient for it to source the input from the independent supplier.

To recap, prior to vertical integration, we had a market with one buyer and two suppliers that was fully efficient. And then, following vertical integration, the market was no longer efficient. Vertical integration caused the market to become inefficient. Vertical integration caused the market to change from one in which the buyer efficiently purchased from the lowest-cost supplier, to one in which the integrated firm's internal source of supply caused its willingness to pay for the input to change. Specifically, it caused that willingness to pay to be drawn from the same range as the independent supplier. And we know that bargaining is inefficient in a setting like that in which parties are not certain of the willingness to pay or cost of the party on the other side of the bargaining table, and in which the ranges for the buyer's willingness to pay and the supplier's cost overlap.[5]

4 If one assumes, for example, that the suppliers' costs are uniformly distributed on the interval between $1 and $10, then the optimal reserve price for a buyer with a willingness to pay of 20 or greater, as in our example, is $10. Thus, starting a descending-price procurement from a price of $10 is an optimal procurement for the buyer in our setting.

5 These conclusions do not depend on there being a single independent supplier or the buyer having demand for a single input. See, for example, Delacrétaz et al. (2019) for general conditions for the impossibility of efficient trade. Delacrétaz, D., S. Loertscher, L. Marx & T. Wilkening (2019): "Two-Sided Allocation Problems, Decomposability, and the Impossibility of Efficient Trade," *Journal of Economic Theory*, 416–454.

## IV. EFFECTS ON INVESTMENT

We have seen that vertical integration can lead to market inefficiency. This means that goods are being produced by suppliers that do not have the lowest cost. That means that we have deadweight loss. Social surplus is reduced below what it would be in the absence of vertical integration.

But the loss of efficient trade has follow-on effects. For example, suppose that suppliers can make investments that reduce their production costs – more specifically, that change their cost distribution, for example, making lower costs more likely and higher costs less likely. If bargaining in a market with private information is efficient, then suppliers will have the right incentives for efficient investment. Their incentives for investment will be aligned exactly with what a social planner would want those investments to be. But if bargaining is not efficient, then incentives for investment are unlikely to be aligned with efficiency.

When vertical integration disrupts the efficiency of a market, it also disrupts the efficiency of investment. It changes a market from one where efficient investments in cost-reducing technologies are an equilibrium outcome for the suppliers to one in which suppliers' equilibrium investments are no longer the first-best.

If a given vertical merger renders bargaining efficient, then it will also align the firms' incentives for investment with the first-best. Thus, a merger that corrects inefficiencies in market transactions potentially has additional benefits as it aligns firms' decision making on issues such as investment. But a merger that introduces inefficiency into the market will also introduce distortions into firms' incentives for investment.

The example here involves investment in technology that would improve the distribution of suppliers' costs – that is, the investment would make lower costs more likely. But the result that the efficiency of investment incentives is tied to the efficiency of the market process also holds for investment by the downstream firm that improves the distribution of its willingness to pay for the input and for investments by the upstream suppliers in the quality of their inputs. This is true if an upstream supplier's investment in quality only improves the quality of its own product. The analysis is more complicated if one supplier's investment also improves the quality of its rivals' products.

## V. DISCUSSION

As just discussed, if the pre-integration market involves a buyer using an *efficient* procurement process to purchase from two suppliers, then the post-integration market will be less efficient than the pre-integration market. The post-integration market will be less efficient because it will have an integrated firm that, at least sometimes, sources the input internally, from its integrated supplier, even when the remaining independent supplier has a lower cost. This happens because bilateral bargaining between the integrated firm and the independent supplier is inefficient – it suffers from what economists might refer to as a Myerson-Satterthwaite problem – that is, bargaining between a potential buyer and potential seller of a good, both with private information about their willingness to trade, is inefficient when their willingnesses to trade are drawn from overlapping ranges. In this case, vertical integration *changes* the nature of the price-formation process in a way that causes an efficient market to become inefficient.

A number of lessons can be distilled from these examples. First, it is important to recognize that the efficiency of the market process is something that is *affected* by market structure and can *change* when market structure changes. This means that an evaluation of the competitive effects of a vertical merger, or any merger for that matter, needs to consider the possibility that the efficiency with which the market operates will be affected by the transaction. Of course, if it is anticipated that the efficiency of the price-formation process will be affected by a transaction, then that leads to other questions, such as how investment and other choices of firms in the industry, including both the merging party and others, will be affected. Second, economic theory teaches that in some settings a vertical merger changes the market structure in a way that *harms* the efficiency of the market process. We are able to conclude from this that there should be no presumption that vertical integration is efficiency enhancing.

Although we have argued based on very simple setups, the result that vertical integration can cause an efficient market to become inefficient is quite general. First, the result that trade between a buyer and a supplier is inefficient in a setting with private information and overlapping ranges for agents' willingness to trade is a general result with theoretical foundations going back to a seminal paper by Nobel prize winning economist Roger Myerson and co-author Mark Satterthwaite in 1983. They show that when there is overlap in the range of values for the buyer's willingness to pay and the supplier's cost, then there exists *no* efficient trading mechanism that satisfies the standard constraints of incentive compatibility, individually rationality, and no budget deficit. Subsequent research has extended Myerson & Satterthwaite's result on the

impossibility of efficient trade to rich environments in which buyers and sellers have multi-dimensional private types, many-to-many trades, and heterogeneous objects. Further, in our example with one buyer and two suppliers, we considered the case in which the buyer holds a competitive procurement. But, holding fixed our assumptions about the ranges for the agents' values and costs, other assumptions on the pre-integration price-formation process, such as bargaining with equal bargaining powers, deliver the same result. Our use of a competitive procurement was just one example. We emphasize the possibility that vertical integration can take an efficient market and cause there to be the Myerson-Satterthwaite problem that efficient trade is impossible.

Analysis and discussion of vertical mergers invariably leads to the concept of elimination of double markups, so it is perhaps remarkable that the discussion above does not use that term. The elimination-of-double-markups rationale for vertical integration rests on models that impose a restriction on the contracting space – linear prices rather than two-part tariffs – with complete information. In such a setup, the downstream firm faces a marginal cost that is different from the true production cost of the upstream firm, which results in prices to downstream consumers that are distorted away from the efficient level. The Myerson-Satterthwaite problem discussed here is a private information analogue to the double-markup problem that, importantly, does not rest on restrictions of the contracting space. When suppliers have private information about their costs, there will be situations in which the vertically integrated firm uses its internally supplied input even though one of the independent suppliers has a lower cost to supply the input. That is an inefficiency that arises as a result of vertical integration, regardless of markups. We emphasize here the need to keep in mind that vertical integration creates this type inefficiency, which we can think of as a form of customer foreclosure.

# MERGERS IN HIGH-TECH: A RESPONSE TO CRITICS

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# I. INTRODUCTION AND SUMMARY

There is general consensus among analysts, politicians and the public at large that something needs to be done about the power of, and abuse of power by, high-tech giants such as Google, Amazon, Facebook, and Apple ("GAFA"). The consensus breaks down when it comes down to specific proposals, but very few — if any — would agree that going on with business as usual is an acceptable solution.

A number of antitrust analysts — from both sides of the Atlantic and beyond — advocate for a stronger merger policy in the digital space. The so-called Stigler report (Scott-Morton, 2019), for example, calls for a reversal of the burden of proof in merger review: let the tech giants prove in court that their proposed acquisition is pro-competitive.[2] Other industry experts advocate similar proposals.

I would like to present a cautionary note, namely that the kind of merger reform that is being widely proposed would likely have a significant chilling effect on mergers (which is not surprising) and in turn would likely reduce the rate of innovation (which is more controversial) and ultimately would lower consumer welfare.

Before getting to my main argument, however, I want to make two points. First, in a recent anonymous referee report I was told that:

> I have seen enough pieces coming from Google & Co calling for a cautionary note. I see little reason for adding to this advocacy. In fact, I would argue that a message like this one can be misleading for readers who know little about competition policy.

I have no fears regarding the latter possibility, as my readers are surely well versed in competition policy, probably more than I am. But I do resent the suggestion — indirect as it may be — that my work is a work of advocacy. To be crystal clear: I have never worked, directly or indirectly, for any of the giant tech firms that I write about in this paper (or for any of their competitors, for that matter).

The second preliminary note is that, while mine is clearly the minority view when it comes to mergers, overall there is more consensus than disagreement when it comes to tech giants and public policy. Like most, I am very concerned about the extent of market power and abuse of dominant positions among GAFA (or GAFAM or any extension thereafter). Like most, I believe U.S. merger policy has largely been characterized by under-enforcement (think healthcare, airlines, etc.). Like most, I agree that many of the mergers we observe are preemptive in nature.

All of the above notwithstanding, I believe the proposed treatment of mergers and acquisitions in the digital space, especially when it comes to GAFA-like tech giants, is unwarranted and would cause more harm than good. To understand this point, it's important to understand that the "digital" space differs in several important ways from the typical industry that merger policy was designed for. First, in the digital space it is difficult to predict business models and how they evolve. As a result, the vast majority of acquisitions are motivated by option value, not by preemption value. Second, it is difficult to protect and transact intellectual property, and as a result the threat of imitation looms constantly. Third, and related to the previous point, acquisitions play an important role in transferring technology. Fourth, there are frequently significant synergies: the value of innovation is higher with a large firm than with an entrant, for reasons that have little to do with market power. Finally, and perhaps most important, the prospect of acquisition serves as an important incentive for startup innovation. In Cabral (2020) I develop each of these points in detail.[3]

2 Fiona Scott Morton (Chair) (2019), Report of the Committee for the Study of Digital Platforms, Stigler Center for the Study of the Economy and the State. See https://research.chicagobooth.edu/stigler/media/news/committee-on-digital-platforms-final-report.

3 Luís Cabral (2020), "Merger Policy in Digital Markets," forthcoming in Information Economics and Policy.

## II. CRITICISM

I am well aware that my view on mergers in the digital space places me clearly in the minority camp. I am also aware that it raises multiple objections. I know that because I have read or heard multiple ones. In what follows, I list those I can recall and address them the best that I can. Specifically, the following are arguments — weak arguments, in my opinion — in support of the idea of reversing the burden of proof in merger approval.

### *A. Resource Asymmetry*

The tech giants have considerably more resources than the regulatory agencies. Therefore, it makes sense for them to carry the weight of an investigation, which you effectively do by reversing the burden of proof. My response is that there are many ways of solving the resource issue other than reversing the burden of proof. It would be considerably more efficient to charge the merging notifiers a fee, possibly a fee proportional to the estimated transaction value. Alternatively, the agency in charge could choose one or two or three experts to work on the case and ask the merging parties to cover the costs. Or there could be a rule such that all experts are paid by the merging parties, but for each expert who testifies "in favor" of the merging parties the agency has the option of appointing a "counter expert" of their choice.

### *B. Status-quo Bias*

The U.S. legal system places a disproportionate weight on defendants, thus creating a high bar for agencies intending to block a merger. I agree that reversing the burden of proof would significantly tilt the system in the direction of making it easier to block a merger. However, if the U.S. legal system is biased in favor of civil case defendants, then we need to reform the U.S. legal system, not the merger approval process. A merger should be approved if, on balance, the positive effects outweigh the negative ones. There should be no room for "beyond reasonable doubt" criteria, which should be reserved for criminal cases.

Although the proposal of placing the burden of proof on the acquirer seems to have been well received in Europe and the UK, it's also not clear how the above argument (disproportionate weight on defendants) applies. And speaking of multiple jurisdictions, one must not forget that a tech giant merger must be approved simultaneously by multiple agencies (i.e. we're talking about "global" mergers). Given that, is the current system really tilted in favor of would be acquirers?

### *C. Killer Acquisitions*

Cunningham, Ederer and Ma (2020) provide compelling evidence that many mergers are preemptive in nature, thus anticompetitive.[4] I have great admiration for this paper and its authors. Their theoretical model is sensible and the empirical analysis tight. However, I have read more than one academic paper and op ed piece that mentions the high-tech giants and the Cunningham-Ederer-Ma paper in the same paragraph. My point is that this amounts to mixing apples and oranges. The digital giants are simply not like pharma (the industry of focus in the Cunningham-Ederer-Ma paper).

### *D. Kill Zone*

Kamepalli, Krishna, Rajan, and Zingales (2019) provide a theoretical analysis and suggestive empirical evidence for the existence of "kill zones" in the digital space, the idea that acquisitions by big tech have a discouraging effect on innovation.[5] I do not have a formal empirical study to counteract their argument, but my experience from observing (and talking to) startups is that the prospect of acquisition is frequently an integral part of their "business model." In fact, the startup's main fear is not to be acquired by a tech giant but rather to be imitated by a tech giant, what Cabral (2019) refers to as the shadow-of-Google effect.[6]

4 Colleen Cunningham, Florian Ederer, Song Ma (2020), "Killer Acquisitions," forthcoming in Journal of Political Economy.

5 Sai Krishna Kamepalli, Raghuram G. Rajan, and Luigi Zingales (2020), "Kill Zone," Becker Friedman Institute for Economics Working Paper No. 2020-19.

6 Luís Cabral (2019), "Standing on the Shoulders of Dwarfs: Dominant Firms and Innovation Incentives," CEPR DP 13115.

### *E. Data Availability*

The merging parties have considerably more and better data than the agencies. There is no question about the asymmetry in the amount of available data. But there are better ways of addressing this — for example, requiring the merging parties to provide the data requested by the agencies. The argument could be made that the merging parties could then be very selective in the data they disclose, but this problem applies just as well when the merging parties are asked to make their pro-competitive case: they would certainly make a highly selective use of their private information. Which leads me to the next point.

### *F. Asymmetric Information*

The merging parties have better information about the business rationale for the merger than the agencies. This is in general true, but one of the points I try to make is precisely that, when it comes to digital high tech, it's more a case of uncertainty than of asymmetric information. Moreover, at a theoretical level it is not clear what the effect of asymmetric information is on the optimal sequence of events in merger review. Games with asymmetric information where the informed party moves first frequently result in information unraveling, whereby the information received from the informed party is essentially meaningless.

### *G. Zero Enforcement*

Of the hundreds of acquisitions by GAFAM since 2000, not one has been blocked. Clearly, this is a case of merger review under-enforcement, in fact, zero enforcement. Not quite. First, enforcement refers to the effort by merger authorities (which did review a number of cases), not necessarily the outcome. Second, under or over enforcement is a relative concept, relative to the optimal level. Third, and more important, my note of caution refers to the proposed merger reform, not the current setting; and the proposed reforms would swing the pendulum to a point of almost surely over-enforcement.

### *H. Scrambled Eggs*

The "scrambled eggs" metaphor reminds us that, in the digital world, *ex post* divestiture is difficult if not impossible: you cannot unscramble the eggs. If merger approval is an irreversible decision, then we should err on the side of caution. This is a valid argument. However, it's important to understand that divestiture is not the only *ex post* remedy. In fact, it is frequently the worse possible remedy (because, for example, of network effects). There are many alternatives, including in particular behavioral regulation.

### *I. Theoretical Analysis Shows that Digital Mergers can be Preemptive*

Two recent papers provide different narratives leading to a pre-emptive view of acquisitions in the high-tech space: Fumagalli et al (2020)[7] and Katz (2020).[8] As often happens in economic analysis, the results depend on the assumptions you make. I believe that, when it comes to the digital space, more often than not my perspective on mergers is more relevant than the alternatives. This is not to say that there are no preemptive mergers or that I propose we abdicate from merger review. I am only providing a word of caution with respect to a wholesale reform as the reversion of the burden of proof would imply.

7 Chiara Fumagalli, Massimo Motta, Emanuele Tarantino (2020), "Shelving or Developing? The Acquisition of Potential Competitors under Financial Constraints," forthcoming in Information Economics and Policy.

8 Michael L. Katz (2020), "Big-Tech Mergers: Schumpeterian Competition, Innovation, and the Treatment of Emerging Competitors," forthcoming in Information Economics and Policy.

## III. REGULATION

So as not to appear overly negative, and consistently with my initial claim that something needs to be done, I next propose a possible plan of action. Competition policy (and antitrust) is typically thought of as a set of three bins: collusion, mergers, and abuse of dominant position. When it comes to GAFAM, collusion has little bite; and mergers, for the reasons I presented earlier, should not have much bite. We are thus left with addressing situations of abuse of dominant position. I next address this approach.

A reasonable system of digital firm regulation requires that we address at least three points: First, what firms are subject to regulation. A good start would be "whatever size thresholds include GAFAM." One might add other thresholds so as to include, for example, platforms and gatekeepers that are effectively "essential facilities" even if their size is not even close to GAFAM.

The second point to address is the definition of what behaviors are considered anti-competitive. I think an examination of the EU and U.S. cases involving GAFAM in the past 20 or 30 years provides a good starting point: self-preferencing would likely be on top of the list, but there are certainly other issues.

Finally, the third decision required for a robust regulatory system is the balance between ex ante and ex post regulation. My proposal here would be to have a (possibly evolving) list of presumed anti-competitive behaviors (e.g. self-preferencing). While these would not be considered per se illegal, the anti-competitive presumption would signal that the firms would need to have a clear efficiency and/or pro-competitive justification so as to prevent ex post regulation.

## IV. CONCLUSION

I agree with most industrial organization economists that the current state of affairs in the high-tech sector is unacceptable. However, policy experts are barking at the wrong tree when they insist on drastically increasing the bar for high-tech mergers. If technical change in the 1970s and 1980s moved us away from sectoral regulation, the nature of high-tech platforms all but requires that we seriously consider this option as the best means to preserve the benefits from innovation and network effects – and make sure those benefits get to the consumer.

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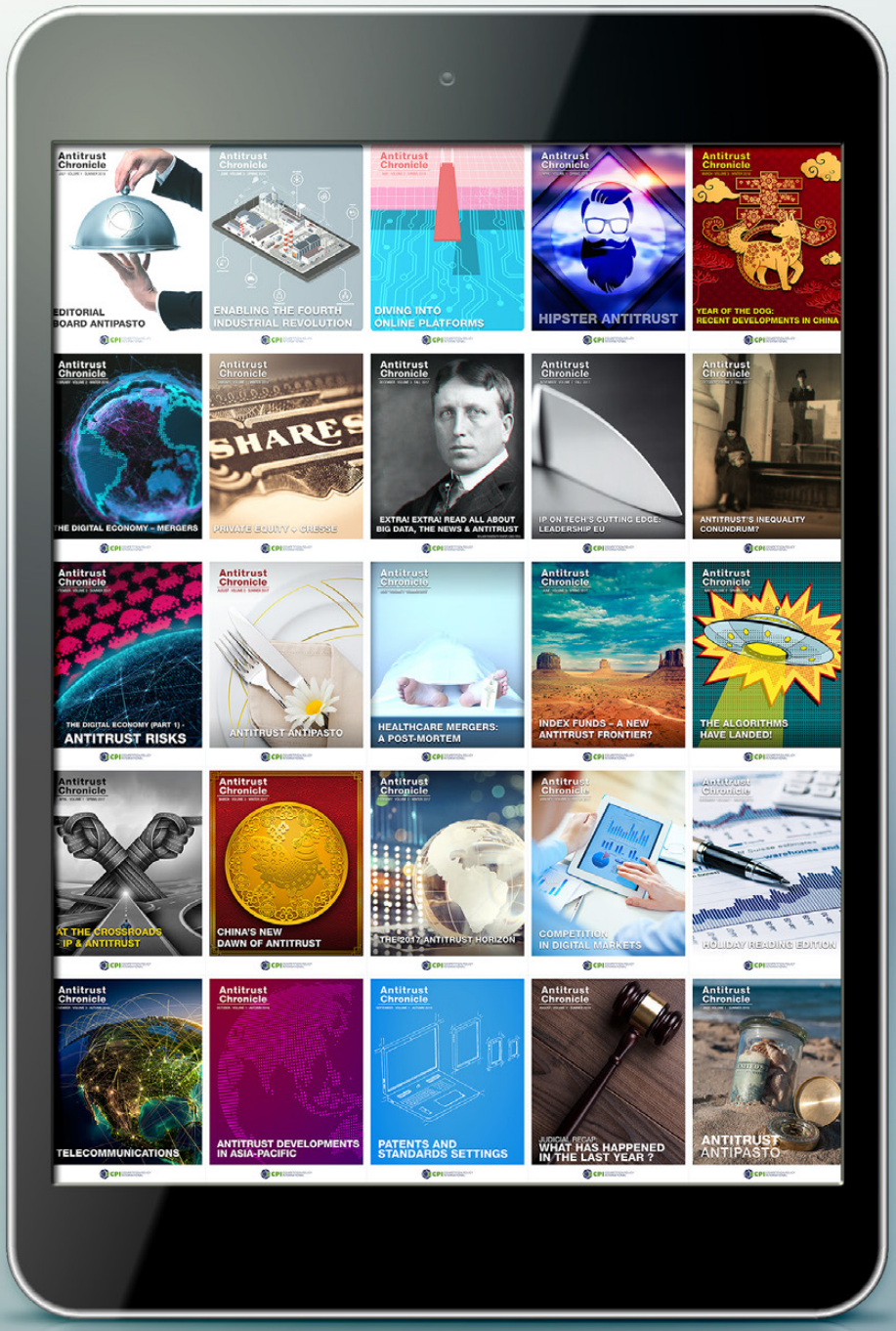


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