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SCRAMBLED EGGS AND PARALYZED POLICY: BREAKING UP CONSUMMATED MERGERS AND DOMINANT FIRMS

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Abstract

Entrenched dominant firms and anticompetitive consummated mergers pose growing problems for antitrust agencies throughout the world. A lot of thought is being given as to how to address these situations but perhaps the most obvious idea--breaking up such firms—is generally dismissed as impractical, the equivalent of trying to unscramble eggs. We disagree. We show that there have been a substantial number of successful breakups of firms, some in antitrust, more in regulated industries, and even more in the private sectors of the U.S. and U.K. as firms initiate their own restructuring. We believe that a policy of breakups can have a much greater chance at success compared to efforts to regulate such firms through rule-making conduct remedies. And we argue that breaking up such firms is facilitated by the fault lines that reveal the natural break points of these heavily merged firms We recommend that breakups be on the policy menu for competition agencies.

Note

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I. INTRODUCTION

One measure of how satisfied we should be with the tools and methodology of competition policy is simply whether the results themselves are satisfactory. By this measure, there is reason for concern. Evidence shows that many mergers approved by the competition agencies have proven anticompetitive and now remain untouched and seemingly untouchable. And it is obvious that competition policy has been no obstacle to the rise of dominant firms in e-commerce, social media, online search and other important aspects of the modern digital economy. The well-documented results of these trends are increasing market concentration, entrenched dominance, diminished competition and entry, and harm to consumers and businesses alike.

This realization has prompted competition agencies, policymakers, academics, interest groups, and others to propose various ways of addressing the weaknesses of past policy. Most of these proposed policies involve more vigorous application of conventional tools. For the tech companies, these include imposing access requirements, nondiscrimination provisions, and interoperability, either through actions by the competition agencies or by a new digital regulatory body. For mergers, proposals focus on strengthening agency capabilities through more resources and modest legislative changes to broaden their powers.

We do not doubt that some of these initiatives, in the right circumstances, may have beneficial effects. A digital competition agency, for example, might be able to prohibit certain practices ex ante and thereby relieve the agencies of repeated ex post evaluations of practices that are broadly anticompetitive. More resources and a stronger legislative mandate would help competition agencies confronting ever larger mergers and ever more complex practices.

But these proposals are not likely sufficient for two reasons. First, neither addresses

existing conditions--the current non-competitive state of numerous important markets where past permissive policy has resulted in entrenched market power and dominance. In addition, these proposed policies do not fundamentally alter the concentrated market structures that give rise to various anticompetitive practices. Experience shows that this “rules and remedies” approach is often a game of “cat and mouse” as agencies try to prevent companies from engaging in activities that increase their profit, activities made possible by their size, structure, and informational advantages.

To be effective, policy toward large consummated mergers and dominant firms must be formulated with the understanding that those companies have every incentive and considerable ability to minimize these constraints. Many are large, agile, entrenched companies with technology on their side and enormous profit incentive, and rules and remedies should not be counted on to make them act against their own interests and help promote competition. Indeed, that is the very belief that has resulted in the rise of anticompetitive market structures and diminished competition in the first place. We have run that experiment and we know how it comes out.

This paper argues that we should begin to employ whenever appropriate a policy with sufficient scope and power to predictably—not just hopefully—remedy these competitive problems. That policy is simply to undo certain mergers and break up certain dominant companies. The rationale for doing so is straightforward: where the essential competitive problem with a company is its structure, in the sense that its anticompetitive behavior flows inexorably from that structure and is otherwise difficult to prevent, it follows that the necessary solution likely lies in altering that structure.

The usual response to the idea of breaking up dominant firms or consummated mergers is to argue that the costs and difficulties are overwhelming, that it is the equivalent of unscrambling eggs, and with that most analysis ends. We do not accept these arguments as self-evident or the obstacles as insurmountable. We do not accept that break ups cannot be done or that they may be too costly even to consider—arguments commonly advanced by advocates of lesser approaches. Some of these claims are demonstrably false, while others do not speak to the correct criterion for policy. That criterion is not whether a policy is costless or perfect but rather whether it is superior to the real-world alternatives. In the present case, those alternatives have primarily been hopeful reliance on weak rules and remedies, or—in the case of consummated mergers—most often simply doing nothing in the face of competitive harms. By that standard, the policy tool of breaking up firms needs to be treated as a realistic—and at times necessary-- option.

Moreover, we note that there are enough examples--not perfect examples, to be sure, but examples nonetheless-- of what we advocate here to provide insights and lessons. These include several break ups of dominant firms in U.S antitrust, and also more recently, break ups of much of the regulated telecom and electricity sectors in the U.K. and U.S. Many of these experiences with actual break ups are in fact successful restructurings, with major widely recognized benefits in terms of price, innovation, and investment. Those lessons should not be ignored.

We note in addition that break ups are quite frequent in private industry. While self-initiated and hence presumably profitable for the companies, these numerous voluntary divestitures have lessons for policy with respect to the practical issues of how best to devise and implement break ups of firms. We shall examine those experiences, and others, in this paper. Despite their differences, all of these cases are useful in informing a policy of "unscrambling the

eggs" of companies whose structure lies at the root of behavior resulting in competitive harms.

To be sure, we are by no means the first or only observers to advocate consideration of breaking up dominant or merged firms.[1] Our contributions are to review the economics of actual experiences, to propose a framework for possible breakups, and to apply this framework to some prominent cases in order to demonstrate its practicality.

This paper begins by reviewing the decline of competition in major economies, with a focus on the U.S., and detailing the inadequacy of traditional tools of competition policy in contending with these forces. That sets the stage for serious consideration of a policy of breaking up certain dominant firms and consummated mergers. We discuss the issues, cases, and lessons from past experiences with such break ups in the U.S. and the U.K.

Our final section brings all of these insights and lessons with some specific recommendations for the practical aspects of a policy of breaking up consummated mergers and dominant tech companies. To be clear, we do not here advocate specific actions against specific mergers or dominant firms. Rather, we set forth some lessons from past experience that are intended to inform policy how one might go about such an exercise where justified by analysis of competitive harms.

II. THE EROSION OF COMPETITION POLICY

II.A Mergers, Dominant Firms, and Market Power

Mergers and acquisitions have contributed directly to increased market concentration throughout the economy and for the rise of the major tech companies. In the U.S., mergers have

[1] See for example, Kahn (2019), Patel (2019) and Van Loo (2020).

transformed industries such as brewing, supermarkets, hospitals, car rentals, eyeglasses, crop seeds, industrial chemicals, meat packing, wireless carriers, among many others. Detailed studies by Autor et al. (2020), Grullon et al. (2019), and others have documented the rise in concentration in hundreds of industries across all sectors of the economy, generally beginning in the 1990s. Increases have also been documented in firm mark-ups (De Loecker et al., 2020), which is an indication of market power, while the labor share of output has been declining (Barkai, 2020) as has the rate of new firm startup and entry.[2]

The dramatic growth of the five major tech companies--Amazon, Apple, Facebook, Google, and Microsoft—has also been fueled by their enormous numbers of acquisitions. In the past 20 years, these companies have acquired a total of more than 800 firms, with the rate of acquisitions faster in the most recent 10 years. Google has been particularly aggressive, having bought on average one company every 3 weeks for the past 10 years. Its acquisition of DoubleClick directly led to its dominant online advertising operation. Facebook's dramatic growth has been driven by its acquired WhatsApp and Instagram divisions. Amazon's acquisitions of Zappos and Whole Foods have extended its reach into new retail areas.

Of course, growth of the tech sector has also been the result of key innovations by these companies, many of which have served consumers well. And it is widely understood that these digital markets present a combination of forces--high economies of scale and scope, tipping, and network effects--that drive the core platforms toward dominance (Stigler Center (2019), Digital Competition Panel (CMA, 2020), Cremer et al. (2019)). Our focus here is not on these

[2] Numerous less formal data compilations by the U.S. Council of Economic Advisors (2016) and by the Economist (2016) provide further corroboration of these trends.

companies' core platform, but rather on how their mergers, acquisitions, and expansions have exploited, extended and cemented their dominance and thereby harmed competition.

This history of mergers and concentration, of tech acquisitions and expansion, need not have happened. It has happened because competition policy has been unable or unwilling to contend with these developments. This record has been thoroughly reviewed elsewhere (Kwoka, 2015a) and needs only a few brief reminders. Data from one U.S. agency, for example, reveal that over the past ten years it has investigated an ever smaller fraction of reported mergers and has over a longer period of time progressively backed away from any enforcement actions against all mergers except for those in the most highly concentrated industries. This record of diminished policy is even more dramatic in the tech sector. Of the 800 acquisitions by these companies since the year 2000, the U.S. antitrust agencies have investigated only a limited number, challenged exactly one, and ultimately blocked none. The same pattern holds in other jurisdictions. Worldwide, approximately 97% of these tech company acquisitions have not even been vetted by any competition authority. To date, not a single one has been blocked anywhere.

Compounding the problem, once approved, few mergers and none of these tech acquisitions seem to be subject to meaningful oversight or remedy. Even those mergers that in retrospect seem very likely to be competitively problematic--such as Google's acquisition of DoubleClick and Facebook's acquisition of WhatsApp—have until very recently been viewed as fait accompli and beyond the reach of the law, or at least of the agencies. In a few instances competition authorities have sought to rein in the anticompetition behavior of these companies, but as we shall see these experiences in fact underscore the overwhelming difficulty faced by competition agencies seeking to control the behavior of large, profitable, and tightly structured

companies through rule-making and conduct remedies.

II.B Rules and Remedies

Where the agencies have acted, their approach has typically been to identify and prohibit the specific offending conduct through rules and conduct remedies imposed on the firms. But a policy based on rules-and-remedies policy has proven difficult to devise and implement and as a result has not generally been effective. It is difficult for the agencies to define the exact conduct at issue, to write operational prohibitions limited to that conduct, and to monitor and deter violations. This is not surprising since rules and remedies are nothing but constraints on the firm's profit maximizing behavior, and companies have every reason to find ways to minimize their impact or evade their purpose altogether.

Firms have numerous ways of avoiding these constraints. They obviously have better information about their own technology and operations, so they can identify work-arounds. They can exploit ambiguities in the language of a rule or remedy to their advantage. They engage with customers and rivals in countless ways that are not covered by the rule but nonetheless permit alternative actions that achieve their ends. Many such actions are unobservable to the agency or any outside party, so that enforcement is weak. Changes in technology and market conditions can overtake static prohibitions and provide new opportunities to achieve old objectives.

In the context of merger enforcement, such rules have often been used to permit a merger to proceed while subjecting it to prohibitions on specific anticompetitive conduct made possible or profitable as a result of a merger. These prohibitions—known as conduct or behavioral remedies-- include bans on the exchange of competitively valuable information across divisions of the merged company, information that would otherwise not be available to independent firms.

Another would prohibit actions that disadvantage or foreclose an independent rival from access to a necessary product the merged firm now controls, where that rival competes at a different stage with the merged firm. A third common provision seeks to prevent the large firm from leveraging its dominance in one product to a requirement that buyers purchase its other product. And finally, many such remedies seek to prohibit a dominant firm from retaliating against an independent firm for not acceding to its various demands and requirements.

In the tech sector, examples of competitively problematic conduct include contractual constraints on competition, such as exclusivity and default provisions; limitations on service offerings, such as in bundles only, pre-installation, and non-deletion; entry pre-emption and barriers through the manner of presentation of rivals on sites, quick replication of successful rival services, and misuse of data on rivals and their customers; self-preferencing and bias from paid product placement on sites; and most favored customer clauses that limit price competition from hosted sellers.

There is a widespread view among policymakers that rules and remedies are inferior to structural divestiture in order to address competitive problems. This is explicitly stated in European Competition Law, where the European Commission observes that structural remedies are easier to implement and do not require medium or long-term monitoring measures.[3] In the U.S. the Antitrust Division of the Justice Department issued a policy guide on remedies in 2004 expressing the same view. While a 2011 revision had a more sympathetic view of conduct remedies, that revision was withdrawn in 2018. Despite these statements, practice in both jurisdictions has been mixed. In recent years the EC has often accepted remedies containing

[3] Para. 15 of the 2008 EC Remedies Notice.

behavioral elements. Some recent cases in the U.S. have featured conduct remedies as well, raising concerns as to whether a true policy change has occurred.

The fragile nature of a conduct remedy as a device to resolve competition problems with a merger has been repeatedly demonstrated. One recent example in the U.S involves the 2010 merger of Ticketmaster and Live Nation. At the time of their merger, Ticketmaster was the dominant provider of ticketing services to live music venues, while Live Nation was the largest concert promoter that booked performers to those venues. One of the major concerns with the merger was the possibility that the merged company would condition a venue's access to Ticketmaster's services on that venue taking Live Nation's performers, or alternatively, access to a performer might be conditioned on also contracting for Ticketmaster's services and terms.

The U.S. Justice Department permitted the merger to go forward subject to a provision stating that the merged company must not "condition or threaten to condition the provision of Live Nation Entertainment Events to a venue owner" on whether that venue had contracted with a ticketing servicer other than Ticketmaster. Despite this, the merged company immediately engaged in precisely these practices, subsequently claiming that the original language only prohibited conditioning if it involved *all* Live Nation events, not any single one or a few (Kwoka, 2020). It took fully nine years for the Justice Department to take action against the continued prohibited practices of the merged company, and that action was simply to revise the language of the remedy.

The Ticketmaster case illustrates the difficulties of writing a remedy without a loophole or ambiguity, together with the lags and difficulties associated with fixing them. Other mergers have similarly been concluded with conduct remedies that have in fact proven not constraining,

or not plausibly constraining when there is little possibility of even detecting violations of the orders. Recent actions by the Justice Department in approving the Sprint/T-Mobile merger illustrate these concerns.

In the tech sector, rules and remedies have a poor record as well. While we will discuss the broader issues raised by this case below, the U.S. case against Microsoft resulted in a final order requiring Microsoft to license to third parties its communications protocols for connecting servers to desktop computers. As part of this, the company was ordered to prepare and provide the necessary documentation within the first three years of the five-year term of the consent order (First and Gavill, 2014).

It soon became apparent to the court and third parties that Microsoft was making little progress toward this requirement. The court then had its own Technical Committee devise a plan and timetable for Microsoft to follow. As the three-year deadline approached, Microsoft reported to the court that it would need an additional two years to complete the task. In response to complaints from both the Justice Department and third parties that Microsoft was simply stalling, the company asserted that it was having trouble "finding and hiring competent employees with the necessary experience in and training for these highly specialized tasks."

After another year and with little leverage against the company, the Justice Department again renegotiated the terms of its order, allowing Microsoft a further two-year extension. Those additional two years passed without completion of the documentation. At that point the Justice Department and the outside parties effectively gave up, agreeing to declare Microsoft's work "substantially complete" although there remained hundreds of unresolved technical issues. When the Technical Committee ceased further work on these, the process ended—four and one-half

years after the original term of the consent order and nine and one-half years after the original order was entered.

Many observers credit the European Union's approach to tech sector mergers as more vigorous than that in the U.S. but recent examples illustrate the same problems as in the U.S. and likely the same outcomes. After two hefty fines in 2017 (Google Shopping case, €2.42bn) and 2018 (Google Android case, €4.34bn) related to abusive conduct, the EC ordered Google to "cease and desist" from those conducts and not to do anything else with equivalent outcomes. There were very limited instructions in the decision as to what an appropriate remedy could look like. Rather, the company was instructed to devise a remedy that would keep itself from engaging in the conduct at the heart of the infringement and bring that to the agency for approval. With this odd instruction, with huge information asymmetries between company and agency, and with exceptionally strong financial incentives to perpetuate the conduct, the process tended to drag on in time. Much as with the Microsoft decree, in the end the agency did not insist on a structural or similarly tough remedy, but rather is likely to accept a resolution that emphasizes a few beneficial effects from its actions and to move on rather than to be seen as having failed.[4]

It is notable that in addition to fines, the infringement decisions against Google did

[4] In fairness, there was an attempt at some direction both in *Shopping* and *Android*. But it was far too open ended in practice, leaving Google with latitude to come back with a "proposal" of its own. Thus in *Shopping*, the EC wrote: "*As there is more than one way of bringing that infringement effectively to an end, it is for Google and Alphabet to choose between those various ways* (para 698). *Any measure chosen by Google and Alphabet should, however, ensure that Google treats competing comparison shopping services no less favourably than its own comparison shopping service within its general search results pages. The principles (…) should apply irrespective of whether Google chooses to display a Shopping Unit or another equivalent form of grouping of links to or search results from comparison shopping services* (para 699)".

contain a no-discrimination requirement in an attempt to address the “margin squeeze”-type logic. Google was required to show that it was not granting its own comparison shopping services a more favorable treatment than rivals in terms of placement on the page, and within the OneBox. But again here, nothing was explicit and the remedy therefore not effective. Google developed its system in a way that allowed a margin squeeze logic. It set up a separate fictitious business unit (“Google Europe”), with some form of separation in place, and then auctioned off places in the OneBox unit to comparison shopping sites (CSSs) while at the same time bidding against them as an independent player. In order to prevent strategic pricing, it was supposed to show it was making a positive margin on its own bids but in practice, following the financial flows was impossible (and the appointed trustee pretty much faltered). The outcome of this process is that as of today Google wins most of the time and the traffic goes directly to merchants, not to rival CSSs. After multiple iterations, a separate but equally feeble grey *Comparison Shopping* link was introduced recently in the OneBox unit which sends traffic to rival CSSs. Data shows that few click on this link, and it only attracts a tiny share of traffic given that is shown on a hidden tab behind the default view. Contrary to EC protestations, this approach is not going well.

This scenario is also repeated in the EU investigation of *Android:* the Decision mandated Google not to tie the Play Store with its search or engage in equivalent conduct. There is similar language prohibiting the conditioning of a Play Store licence on the OEM entering into anti-fragmentation obligations, and language prohibiting exclusive pre-installation payments. In practice, Google responded by first engaging instead in a de facto tie: while it no longer formally tied the Play Store with Search and Chrome, instead it offered Play Store to OEMs at a positive

price and the latter at an equivalent discount. As a result, OEMs continued to be able to pre-install the Play Store effectively at zero cost, on condition that they also pre-installed the Search app or Chrome. Following complaints, this proposed solution then veered towards an auction for other search engines that in principle could be listed in the set of choices that a new owner of a phone in Europe faces on his or her homepage. In practice, however, Google is always in the list while other search engines (Bing, DuckDuckGo) have to pay for inclusion. And though a few names made it to the list, there is little change in terms of consumers actually choosing to pre-install alternatives to Google Search. The attempted remedy has essentially failed.

Looking forward, the ongoing investigation on Google's proposed acquisition of Fitbit involves a promise by Google "not to use individual/personal Fitbit data for advertising". This raises at least two question. First, it is not clear how such a promise could even be monitored, given the lack of knowledge of Google's algorithm and their track record of cross-uses of data. Second, it ignores the spirit of information spillovers and externalities in data markets: predictions need not rely on individual/personal data, as the companies could train their algorithm in a (more limited) dataset that combines Fitbit's data with the data from the Google's ecosystem (which includes Search, Chrome, Gmail, YouTube, Android apps, and many others) and then apply those predictions to their overall dataset.[5] In other words, it is enough for Google to correlate aggregate health outcomes with non-health outcomes (presumably for even a subset of Fitbit users that did *not* opt out from some use of using their data), to then predict health outcomes (and thus ad targeting

[5] An analogous issue has arisen in the case of Amazon's access to consumer data from businesses hosted on its platform. To rebut claims it was using such data to identify products it might profitably enter by itself, the company assured a U.S. Congressional committee that it did not use "individual seller data directly to compete" with such businesses. Amazon soon had to acknowledge that it uses "aggregated data" from independent sellers, but still without explaining how "aggregated" such data might be.

possibilities, among other things) for *all* non-Fitbit users (billions of them).[6]

II.C Some lessons

For all the reasons discussed and illustrated above, attempts at resolving structural and informational problems through the use of conduct remedies have not met with much success. To the contrary, reliance on them has been one important reason for the persistence and even growth of the dominant tech companies and many anticompetitive mergers. Of course, not all rules and remedies necessarily suffer exactly the same fate. One of us has written (Kwoka, 2015b) that while conduct remedies should be avoided wherever possible, in a merger context they might merit consideration when certain conditions hold, which are likely to be found in some traditional industries but not in the tech space.

Supply agreements, for example, are more plausibly effective when the product or service is simple, and when the price and other terms of the transaction are visible to outsiders. Information firewalls are less vulnerable when the units whose data need to be separated are operationally and perhaps physically separated, and when communications across those units are logged and subject to inspection. Antiretaliation provisions can be effective when the terms of the transaction and the interactions between the players are both very simple so as to afford few alternative points of contact. Instead, such remedies and rules are less likely effective when the technology is complex, rapidly changing, and fungible at the discretion of the subject party.

The dominant tech companies have the very properties that make rules and remedies least likely to work. Their product is not a simple, homogeneous, static commodity, but rather complex and flexible, and subject to rapid change due to the underlying technology and also at

[6] Bourreau et al. (2020). See also Choi et al. (2019) and Acemoglu et al. (2020).

the discretion of the tech company. The ability to alter its operation and interfaces, its compatibility and ties to other products, as well as its pricing and terms of service confer on the company enormous pretextual rationales for actions that adversely affect competition with and by rival companies.

We are not alone in this assessment. Others have, for example, concluded that "antitrust remedies applied to data in digital markets… have largely been ineffective. Hefty fines have done little to change market conditions. And other remedies have either taken a long time to produce effects or have been difficulty to implement." (Gal and Petit, 2020). Schechner and Pop (2020) reach similar conclusions. These experiences and reasons caution against reliance on rules and remedies to alter behavior that is deeply rooted in a firm's structure and very much in its control to define and implement.

III. BREAKING UP CONSUMMATED MERGERS: ISSUES, CASES, AND LESSONS

III.1 The issues

The logic behind a policy permitting challenges to consummated mergers is simple. Merger control is an exercise in prediction, so unless a consummated merger is subject to ex post antitrust examination, the only hurdle for merging parties is the initial review. Moreover, that review is based on whatever information is in the hands of the competition authority. That information is necessarily incomplete, in some cases badly so, and the merging parties have no incentive to assist the agency in improving its information base. This problem affects mergers in certain rapidly evolving industries, such as high technology, more than in others.

These considerations suggest the need for ex post review and possible breakup of consummated mergers. Optimal policy design corroborates this argument (Barros, 2001; Cosnita and Tropeano, 2013). That framework analyzes the choice between ex ante and ex post policy, that is, whether policy should make a conclusive ex ante determination or whether ex post evaluation and possible action are more effective and efficient. Where inference is clear—as with price fixing—an ex ante policy of per se illegality is appropriate, but where predictions are less definitive, ex post policy action can be an appropriate—even necessary--complement so long as the actual effects can be discerned ex post and the costs of ex post action are not too great (Ottaviani and Wickelgren, 2008).

This last consideration—the costs of break up, or at least a sound one—is routinely said to be prohibitive, but there is in fact very little evidence on that issue, certainly nothing to support the argument that breakups cannot be effectively and efficiently accomplished. An insider's account of the AT&T divestiture (Tunstall, 1985) has described the process of constructing nine new companies out of the integrated Bell System as required by the U.S. Justice Department case. This required reallocating 70 million customer accounts, 200 million customer records, 24,000 buildings, 177,000 motor vehicles, and one million employees, all in a period of two years. Of course, in the case of AT&T some broad distinctions between divisions were at least in principle clear--the mandate to separate long distance from local service operations, and to create seven geography-based Regional Bell Operating Companies. Despite protests that this task and the timetable were unrealistic, divestiture was in fact accomplished, on time, and with considerable benefit to competition.

The case of a consummated merger is likely to be simpler since the problematic part may

simply be some overlapping operation that was scrutinized at an earlier stage, and mistakenly allowed to consolidate. In this case, the necessary action might consist of reversing the merger by divestiture of one of those operations. This solution would effectively represent the same policy of targeted divestiture that could have, and arguably should have, been employed at the outset. There is a considerable amount of experience with such divestitures, some of it cautionary but certainly helpful (FTC, 2017).

In other cases, of course, the practical difficulties might be greater. The two firms might have undertaken various degrees of integration, perhaps because that was the very point of the merger, or because much time had passed, or because the firms wanted to make subsequent structural separation more difficult.[7] In this case, any break up would be more akin to the case of restructuring a single integrated company, as will be discussed in the next section.

Except for this latter case, breaking up a consummated merger is easier to the extent that the fault lines denoting its constituent parts are still visible within the new organization. This would seem more likely to be the case, for example, with respect to a vertical merger or a merger of complementary businesses than for purely horizontal mergers. In the latter case the quest for greater scale or scope might result in more seamless integration, whereas vertical relationships combine inherently distinct tasks and more likely remain visibly distinct. In any event, fault lines should be investigated since they represent the best first approximation for how the merger might be undone.

[7] General Motors, for example, was suspected of consolidating the auto assembly operations of its five divisions into a newly created General Motors Assembly Company in part to prevent easy separation of its divisions. More recently, Facebook has reportedly undertaken to more fully integrate its WhatsApp and Instagram divisions into its core platform, with similar suspected motivations.

We do not wish to understate the difficulties that may be posed by some break ups. But a successful break up operation can replace an otherwise lost effective competitor and avoid thorny and often ineffective aspects of conduct remedies. In addition, we note—and will now describe further—the fact that such breakups do occur with some frequency and success.

III.2 Some U.S. Cases

Challenges to consummated mergers are not entirely unusual. Some of these challenges are due to administrative issues, such as the failure to report a merger, or the failure to supply a full report, to the relevant competition agency (OECD, 2014). These are grounds for postmerger intervention in most countries. In other cases, a proposed merger may have been reviewed and cleared but subsequently proved in fact to be anticompetitive. An OECD report found that all but four surveyed jurisdictions specifically limited challenges to proposed mergers, by implication preventing actions against those that had been consummated regardless of their outcomes. Only two jurisdictions--Ukraine and Brazil-- explicitly allow for challenges to consummated mergers, while two others--the U.S. and Latvia -- interpret their statutes as permitting them.[8]

A data base of U.S. enforcement actions found 47 cases involving consummated mergers since 2006, approximately three per year (Practical Law, 2020). Most enforcement actions took place soon after the consummation of the merger--the shortest, literally three days. This suggests that the investigations had simply not concluded before consummation of the merger and so the action was not finalized beforehand. In most of these cases little operational integration typically had occurred and so break ups posed fewer if any practical problems other than those associated

[8] Several jurisdictions in principle allow for challenges to consummated mergers under other statutes governing monopoly conduct or abuse of dominance.

with ex ante policy toward a reportable merger.

Only three actions out of 47 took place more than three years after the merger. At that point in time the merged entity more likely had undertaken or even completed operational integration, and for that reason, these cases are of greater interest here. The consummated merger with the longest delay until challenge involved the purchase by Magnesium Elektron of its sole rival Revere in the production and sale of magnesium plates for photoengraving. Due to its small size, this merger did not have to be reported prior to its consummation in 2007 and was therefore not evaluated at the time.

The FTC challenged the merger more than five years later and settled its action with a requirement that Magnesium Elektron fully divest the assets it had previously acquired from Revere to an approved third party. The order specified these assets to include all related intellectual property, product specifications, manufacturing technology, product development reports, R&D records, product contracts, customer lists, and operating manuals and related materials. Each of these required further definition and specification in the divestiture order. In addition, the terms of transfer, some transition products and services, ongoing assistance, and other matters were set out in a detailed and complex order with many similarities to a conduct remedy. The mandated divestiture took place, both parties appear to survive and continue to produce these products.

The longest delay in challenging a reported—and hence previously evaluated--acquisition involved The Hearst Trust. That entity had long controlled a key drug information database and in 1998 acquired its main competitor Medi-Span. It was sued by the FTC in 2001 both for the anticompetitive effects of the merger and for its failure to comply with the full reporting

requirements. The FTC complaint cited evidence of “extraordinary price increases” that had resulted from the merger and required the Trust to divest to a named approved buyer the assets associated with its Medi-Span business. These assets were specified in great detail in the final settlement order. Both companies continue to operate their services, now with greater competition from a few other entrants.

These cases are examples of reversing a merger in order to recreate the firm that was extinguished by the consolidation and restore the original market structure. A different scenario is one where a largely new firm is created in order to restore the original structure of the market. The 2003 acquisition by MSC Software of its two key competitors in certain engineering simulation software was challenged by the FTC more than two years after its consummation. The FTC’s order required MSC to facilitate the creation of a new competitor by replicating and licensing its key software asset royalty free and in perpetuity to a newly established competitor.

A final example demonstrates the results of the opposite policy, namely avoiding breaking up an anticompetitive consummated merger. This involved the FTC’s challenge to Evanston-Northwestern (ENH) Healthcare System’s 2000 acquisition of its nearest northerly competitor, Highland Park Hospital. After the merger, ENH negotiated a large increase in the prices paid by health insurers for inpatient hospital services. Subsequent studies put the increases at about 24 percent (Haas-Wilson and Garmon, 2011).

In 2007 the FTC challenged this consummated merger and prevailed in the trial portion of the case. But the trial court’s recommendation for divestiture of the Highland Park Hospital was overturned by the full FTC in 2008. It argued that the long interval between the merger and the final ruling would make “divestiture much more difficult, with a greater risk of unforeseen

costs and failures." Accordingly, it resorted to a conduct remedy requiring ENH to set up two separate and independent contract negotiating teams, one for each of the premerger hospital organizations, with a view that this would "re-inject" competitive bargaining between them for the business of insurers. Few outside observers believed that this remedy would somehow cause the otherwise integrated hospital system to compete in this one function, and indeed subsequent academic study provides no support for the belief that it would.[9]

These examples have several lessons. For one, there undoubtedly are greater difficulties in undoing consummated mergers where sufficient time has passed so that the parties have at least partially integrated their operations. But regardless, it is quite possible to do so. Successful unwinding of mergers has been accomplished, even in cases brought a few years after the merger was consummated. And lastly, these experiences seem generally to have resulted in the restoration of competition in the affected markets.

III.C Market investigations in the U.K.

The UK's competition authority (CMA, Competition and Markets Authority) provides an interesting alternative to the U.S. system. Under the Enterprise Act of 2002, the CMA has Market Investigation powers that authorize the enforcer to identify and remedy situations in which there are "features" of a market that create an "adverse effect on competition". Whereas standard competition law is primarily focused on firm conduct, Market Investigations can be used as a complementary instrument to tackle any and all characteristics of markets which can adversely affect competition.

[9] Gowrisankaran et al. (2015) examine the results of this negotiation process in the context of a different hospital merger.

In addition to firm conduct, these characteristics can also include economies of scale and scope, network effects, regulatory and structural barriers, and consumer behavioral factors. Market Investigations also allow for the examination of a wider set of competition concerns than the abuse of dominance and explicit collusion that are core target of standard competition law (Fletcher, 2020).[10] Market Investigations are especially well designed to carry out the complete analysis of markets where problems are market-wide and there are a variety of intertwined factors creating competition concerns. By contrast, in standard competition cases, authorities tend to be focused more narrowly.

The market-specific nature of Market Investigation analysis and remedies, and the lack of any need to show culpability, means that only limited consideration is given to precedence. For example, a Market Investigation does not involve a market definition exercise. This may be useful in digital markets, where market definition—the first step in conventional competition analysis--is challenging as it involves several parts of a much wider and complex ecosystem, and unnecessary to the extent that market power can be demonstrated more directly.

The powers under Market Investigation authority comprise an extensive set of remedies, including regulatory remedies, demand-side remedies, supply-side remedies, and structural remedies – including break ups. Although they have been used with great caution in the UK, there are some examples. These include the Open Banking measures which arose from the Retail Banking Market Investigation and that were designed to open up the potential for disruptive and innovative competition from new technologies and business models (CMA, 2016a).

[10] These powers are currently being discussed at the European level by the European Commission that is seeking to introduce possible new tools to deal with digital platforms, given how standard competition law has been inadequate for addressing competition problems in this sphere (Fletcher, 2020).

Another important case relates to the 2009 Investigation of seven UK airports owned by the British Airports Authority (BAA), which led to a significant divestment of three airports, including two in London. An ex-post assessment done by the CMA itself several years later, by and large, considered that the divestiture was successful, showing evidence of passenger increase, lower operational costs, higher quality of service, and more competitive landing charges, following the break up. The assessment also contains interesting reflections on the importance played by an independent monitoring trustee during the divestiture process (CMA, 2016b).

Far-reaching structural remedies have also been attempted with the divestment of certain hospitals in the private healthcare Market Investigation, and the divestment of a cement business in the aggregates, cement and ready-mix concrete Market Investigation. In the first case, the CMA actually tried to impose the divestment of hospitals on HCA, a large private healthcare provider which had acquired a position of market power via earlier acquisitions. But, after an appeal, it was largely forced to abandon this structural remedy, stating the remedy was no longer proportionate in light of expected entry by new companies.[11]

III.D A few lessons

These experiences make clear that challenges to consummated mergers are not infrequent and not unsuccessful. Many occur shortly after the merger is consummated but others occur years later. Many are too small to require premerger notification to the competition agencies, while others were reviewed and cleared. There are examples where the U.S. and U.K.

[11]"Competition watchdog reverses ruling on private hospital sales", Financial Times (22nd March 2016).

competition agencies have in fact sought to undo mergers as well as cases where they have avoided doing so.

In several cases the break up has involved divestiture of the previously acquired company, whereas in others it appears to involve assets equivalent to, and capable of, the functions of the acquired company. In each case the break up is accompanied by a detailed order specifying all the assets and other aspects of the transaction. While these settlement orders may have similarities to conduct remedies that we have criticized, there are important differences. For one, they do not involve on-going regulation of company behavior, but rather transition devices that expire when the order is satisfied. Moreover, they are often accompanied by a monitor to oversee the process. And finally, they should result in a structurally more competitive market, one analogous to that harmed by the merger, altogether unlike a conduct remedy.

IV. BREAKING UP DOMINANT COMPANIES: ISSUES, CASES, LESSONS

IV.1 The Issues

Possible break ups of dominant firms raise different issues depending on whether the competitive problem involves the firm's related businesses or the core area of its dominance. The former case is illustrated by instances involving a vertical relationship, a complementary product or service, a potentially competitive producer, or one that consolidates market power. For example, AT&T was convicted of using its vertically related local exchange monopolies to prevent competition in long distance service where entry was occurring. Microsoft's development of the browser was an effort to use a complementary product to prevent more direct

competition with its operating system. Facebook's acquisitions of Instagram and, later, WhatsApp are widely viewed as eliminating potential competitors. And Google's acquisitions of DoubleClick, AdMob, AdMeld, Invite Media, and Adometry have served to consolidate its dominant market position in online advertising.[12]

What is common to these examples - and important for policy purposes - is that most involve a distinct business operation resulting from a merger or perhaps internal expansion into a distinct business operation. As a result, the "fault lines" between that business operation and the core platform suggest how separation can be achieved. The principle behind each of these actions is that the firm could made to stick to its core business and not extend its reach into other businesses that might serve various anticompetitive purposes. In practice, the process would be much the same as with breaking up a consummated merger.

The alternative possibility is that the competitive problem with a dominant company is inherent in the characteristic that gives rise to its dominance. Facebook, for example, is commonly viewed as a social media platform with high scale due to network externalities and proneness to tipping to monopoly. To the extent that is the case, breaking up Facebook into multiple smaller versions of the current Facebook would probably not result in long-term viability of multiple competing social media platforms. There might be some period of vigorous competition among the rivals, but most likely a shakeout of all but one dominant firm. That outcome might be forestalled to the extent that the rival platforms differentiated themselves in order to appeal to somewhat different customer bases. Linux, dating apps, and newspapers are

[12] Morton and Dinielli, (May 2020), "Google, largely through acquisitions, acquired all the necessary building blocks to amass dominance".

examples where competing platforms have succeeded in preserving multiple versions despite characteristics that might be viewed as subject to tipping and dominance. Other policies toward firms with core dominance may also prove helpful in sustaining rivals. These include data portability, open access, interoperability, and the like.[13]

These distinctions between complementary and vertical businesses are standard and useful starting points for developing a practical approach to breaking up firms. We next examine the limited but important experience in dealing with these cases.

IV.B Some U.S cases

There have been several antitrust cases in the U.S. where policy has sought to break up dominant firms. Perhaps the most famous historical examples are two cases decided by the Supreme Court simultaneously in 1911--Standard Oil, and American Tobacco. Standard Oil was convicted both because of its pattern of acquiring oil refineries throughout the country, together with various abusive practices toward remaining independent rivals. The court ordered its fragmentation in 34 separate companies, largely on geographical lines based on Standard's holding company structure. While divestiture did not immediately foster direct competition, many of the resulting companies would later interpenetrate each other's markets.

American Tobacco, by contrast, was more of a pure monopoly problem. The company controlled the vast majority of cigarette sales in the country at the time, and the court viewed its enormous size together with some anticompetitive practices as representing monopolization of the market. It proceeded to order its dissolution roughly into the three separate companies that

[13] Kades and Scott Morton (2020) argue strongly that interoperability should be an essential ingredient of competition policy toward tech companies.

had consolidated to form American Tobacco. That process was made complicated by the integration of certain functions like tobacco leaf purchasing at the corporate level but nonetheless was achieved in only 8 months. These companies persisted in some fashion for most of the 20th century, engaging in varying degrees of competition with each other. Changing consumer habits and regulation ultimately resulted in some reconsolidation.

The case of AT&T is a more recent example illustrative of an aggressive policy of breaking up anticompetitive dominant firms. The essential competitive problem involved AT&T's misuse of its local exchange monopoly to insulate its long-distance division from emerging competition. While actions to address this might have been taken by the Federal Communications Commission as AT&T's regulator, it became clear that the agency had no inclination to do so. The antitrust case followed, with the Justice Department prevailing in the case itself as well as in its proposed remedy to break up the company. It successfully argued that AT&T's anticompetitive behavior was the inevitable outgrowth of its structure, so that nothing short of restructuring would succeed. Accordingly, AT&T would be vertically dismembered, and furthermore, its local exchange operations would be divided into seven geographical companies.

Despite protests, this was achieved. To be sure, there were several controversies along the way. The mandate to provide equal access to independent long distance companies, number portability to consumers, and many other operational aspects of divestiture proved difficult, but there is widespread agreement that the break up resulted in greater competition in the telecom sector and a burst of technological progress. If these experiences offer a lesson, it is the importance of ensuring the necessary ancillary agreements are in effect when undertaking structural change. While the U.S. telecoms sector re-consolidated in more recent years, this was

largely due to later regulatory decisions not to impose access obligations on local incumbents.[14]

A more recent U.S. action against a dominant firm, of course, has been the Justice Department case against Microsoft. That case focused on the company's use of its dominant operating system to forestall competition in other businesses where it wished to extend its market power or which it viewed as potentially competitive. The key example at the time involved browsers, where Netscape's product was viewed as an emerging competitive threat since it represented a potential alternative platform bypassing Microsoft's operating system. Microsoft was successfully prosecuted for the various actions it took against Netscape.

The trial court ordered Microsoft be broken up into two companies, one of which would remain its operating system business, while the other would manage its increasingly important Office and other applications. This proposed remedy was rejected by the Appeals Court as lacking foundation in the record. Subsequently, the DOJ negotiated a remedy with Microsoft that involved no divestiture or other structural change and no unbundling of Windows. Rather, it prohibited certain licensing requirements imposed by Microsoft on manufacturers and others, restricted certain exclusivity clauses in its contracts, required disclosure of communications protocols, prohibited retaliation against independent entities, and other matters. The history associated with the effort to ensure disclosure of communications protocols has already been described above.[15] While Microsoft no longer operates from the same market strength, this change has resulted from shifts in its market and its own failures, rather than from agency action.

IV.C Regulated industries in the U.K. and U.S.

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[14] This was the effect of , the U.S. Supreme Court 2004 Trinko decision). Among other examples of regulatory breakups Kahn discusses railroads, banking, and others. Khan, op. cit.

[15] Microsoft encountered similar policy concerns elsewhere. Its conduct was subject to allegations of abuse of dominance in Europe for its practice of tying its Media Player to its dominant Windows and for practices related to its server products. The European Commission decision concluded that Microsoft's actions were in fact anticompetiive and required it to offer alternatives to users, including requirements regarding server interoperability information and unbundling of Media Player.

There is a good deal of practice with mandated separation of dominant companies in regulated industries worldwide. Much can be learned from these experiences. First, there has been much less reluctance to break up firms in the regulated sector. While some have been successful and others not, eggs have been unscrambled a considerable number of times. Never has it been perceived as anathema to consider breakups as a policy tool. In addition, these breakups have occurred without prohibitive costs or permanent damage to the companies. Second, reformers have at times underestimated the importance of ex-post intervention. The level and quality of ex-post intervention (including continued regulation) matter in practice and should therefore drive the optimal choice of form and strategy.

Certain industries have always been considered candidates for structural separations, including telecommunications, electricity, and railways.[16] They exhibit many different features, but are all characterized by a vertically-integrated incumbent operator that provides an essential input (access) to its retail rivals. For instance, the telecom operator BT (formerly, British Telecom) in the UK competes at the retail level with broadband operators such as Sky and TalkTalk, but also used to provide those firms with wholesale access services. In the U.S. twenty years ago federal and state regulators undertook a vast deintegration of many "investor-owned electric utilities" in order to ensure that the monopoly business was not used to undermine competition at other stages.

Vertical integration is well known to confer the firm with both the incentives and the ability to discriminate against its downstream rivals (Rey and Tirole, 2007). The fact that rivals are reliant on the vertically-integrated firm for an upstream, or wholesale, input means that, in some circumstances, the vertically-integrated firm would prefer to harm its rivals, through price

[16] See Auriol et al. (2020) for a general treatment of this subject.

or non-price discrimination, than treat them in the same way as it treats its own retail division. The incentive to discriminate increases if the vertically-integrated firm does not monetize much upstream (for instance, because the input prices are regulated close to its marginal cost). In that case it can boost profits by increasing it retail market share.[17]

In their efforts to foster competition, regulators have imposed various forms of separation between the upstream, monopolistic part of the vertically-integrated firm and downstream businesses that operate in competitive, or potentially competitive, markets. These types of separation have varied from milder forms of accounting separation to the most extreme cases of structural break-ups, but one common feature is that repeatedly, regulators have tried the milder and easier forms, only to find them inadequate and then turning to the structural alternatives.

Accounting separation, whereby the integrated firm keeps separate accounts for its different business activities, constitutes the weakest form of possible separation. It has drawbacks, as accounts are typically held at a rather aggregate level and monitoring of alleged specific abuses is not easy if they are not blatant. It has, nonetheless, been deployed with some frequency in practice in the past, more often in the early years and as a precursor to more intensive forms of separation at a later stage (OECD, 2016). At the other extreme the strongest form is instead the full ownership separation of competitive and non-competitive components within a sector. In between, there is a wide spectrum of potential degrees of separation that go under the name of "functional" (or operational) separation.[18]

[17] This observation is quite important for digital multi-sided platforms, whose business model is often relying on setting zero prices to some parts of the market, where, therefore, direct monetization cannot happen. One would expect non-price discrimination (such as "self preferencing") to arise more often in those markets.

[18] In the telecoms sector, Cave (2007) identified "six degrees" of more intensive functional separation that still fall short of full ownership separation. Starting from mildest forms of accounting separation, these are: creation of a wholesale business division; virtual separation; business separation; business separation with localized incentives; and legal separation involving separate legal entities under the same ownership.

We illustrate the use of these alternative policies by examining the telecom and electricity sectors. A telling example is the rapid transformation of telecommunications in the past 25 years. European electronic communications were traditionally organized around state-owned posts, telephone and telegraph service providers but these arrangements began to be challenged in the 1970s due to a combination of technical, political, economic and social developments. A particularly interesting case is the UK experience with fixed broadband communications. The UK broadband market, like those for other European countries, was initially dominated by BT which transferred its dominant position in the telephone market to the new market of internet access, and maintain it thanks to the high entry barriers typical of a network industry. This setting, which did not favor the entry of new players in the market, changed when EU member states implemented, through their national authorities, a set of EC directives. These so-called open-access regulations required incumbents to offer interconnection to their competitors under the supervision of national regulators.

The regulations introduced by the British regulator (Ofcom) changed and escalated over time. It first attempted a milder form of accounting separation and allowed entrants to interconnect to BT's network. But this did not work since competition did not develop as anticipated. Service-based competition had been possible since the late-1990s but enjoyed only limited success because, it was alleged, BT had abused its dominant position in the wholesale market to enhance its retail competitiveness, a result foreseen by economic theory. Although many companies expressed an interest at the end of the 1990s to offer broadband services, most subsequently left the market.

As a result, Ofcom undertook a major strategic review in 2005, driven by the desire to enhance competition within the broadband telecommunications market and to encourage greater adoption of local loop unbundling, whereby entrants could start investing their own equipment in

the so-called “last mile” to deliver faster broadband. In this strategic review, Ofcom considered recommending the “nuclear” option of structural separation to the UK’s Competition Commission (now called CMA). Rather than risking this reference, BT agreed to a series of legally-enforceable undertakings. BT agreed to create an access service division that would control the last mile of the telecommunications network; be operationally independent of BT while remaining under the ownership of BT; be branded differently from BT (it was renamed Openreach); have its own board. Ofcom accepted the undertakings offered by BT: in total, 236 undertakings were made by BT. These govern the operation of the access service division to ensure that those wholesale customers, which rely on access to deliver their own products and services, are treated no differently from BT's own retail operations.

This was a functional (or operational) separation, in the shadow of a much tougher regulation, possibly involving a full break up. The undertakings were credible, they could be monitored, and they worked. As documented by Nardotto et al. (2015), entrants invested in the local loop, newer vintages of technology were installed, and BT was prompted to respond to this heightened competitive pressure. Consumers benefited.

This organizational structure has now been in place for 15 years. Yet, despite its clear advances compared to the earlier period, Openreach was seen as still giving advantages to BT over its rivals. Ofcom concluded that further separation of Openreach was required, and in 2017 Openreach became a legally separate company from BT, but still wholly owned by BT’s parent holding company BT Group. Openreach Limited had its own staff and management, but network assets remained owned by BT for land-contract reasons. As the discussion continues, a full break-up may actually be in sight soon.

A similar scenario has occurred in the U.S. regulatory effort to bring competition to the electricity sector. Historically, that sector was dominated by about 175 large vertically integrated

corporations, each including generation, transmission, and local distribution services in geographically distinct franchise areas. The purpose of regulatory reform was to encourage competition at the generation stage, initially from independent power producers that arose in the 1980s. The large integrated utilities had little interest in purchasing power from outside sources, and could prevent "wheeling" (that is, transport) power across their lines to other customers by charging inflated transport costs.

Federal and state regulators undertook a long process of ever stronger actions in order to make competition possible. In 1992 the Federal Energy Regulatory Commission (FERC) ordered "equal access," essentially requiring that integrated utilities price transport for independent power sources the same as for their internally produced power. That mandate was supported by a weak form of accounting unbundling and failed due to the inability of regulators to assess whether the relevant prices were appropriate. FERC subsequently ordered functional unbundling and "open access" tariffs, that is, posted and uniform pricing, but continued ownership of infrastructure as well as informational asymmetry provided too many opportunities for integrated utilities to evade this requirement as well.

With the failures of these weaker steps, most U.S. states began forcing utilities to divest their generation operations in order to reduce their anticompetitive incentives and foster greater competition among generators. At the same time, FERC ordered utilities to cede operating control of their transmission infrastructure to newly created regional transmission organizations that were designed to operate in the public interest. While this final step stopped short of ownership divestiture, this series of stages illustrates the overwhelming difficulties of creating a competitive environment in the face of informational advantages to the company and misaligned incentives deeply embedded in an integrated structure.

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In this section we have discussed telecommunications and electricity as the regulated sectors with the greatest similarities to digital platforms. The experience with break ups extends to other utilities, such as gas and railways, which have historically received considerable attention. More recently, break ups have been also discussed and implemented in sectors such as post, water, ports, banking, payment systems, to name a few. Some of these others have been reviewed elsewhere (see, e.g., OECD, 2016).

IV.D A few lessons

There clearly is ample precedent and experience with breaking up dominant firms. Despite variation in experiences, most breakups seem to be have resulted in structurally more competitive markets and stronger competition. Strikingly, there seem to be no examples where breaking up such firms has been attempted but failed in the sense that they were attempted but literally could not be done, and in the process perhaps permanently damaged the firm as a going concern. Nor are there obvious examples where break ups were in fact accomplished but the result was that market competition was harmed. That remarkable fact by itself suggests that a breakup policy is viable, procedures are adequately understood, and some measure of success is a plausible outcome.[19]

Of course, there is considerable room for improvement in the process. Some major divestitures, as that involving AT&T, have proven time consuming and costly. Judicial oversight of the AT&T decree lasted for a decade, in part because of opposition by the company to many of its provisions, but that experience ought not be repeated. Crucially, however, the lesson should be to identify where the legal or operational process needs improvement, so that future instances

[19] Nonetheless, Hovenkamp (2020) describes divestiture as a "sledgehammer remedy" and recommends "properly designed injunction against unreasonably exclusionary contract provisions," although he acknowledged the difficulties with the latter. Kirkwood (2020) asserts that "separation… would come with high costs and also urges actions to prohibit "unjustified exclusion."

where divestiture is used will benefit from experiences of the past.[20]

V. SELF-INITIATED CORPORATE BREAK UPS

Breakups of consummated mergers and large firms for competition and regulatory reasons have not been entirely uncommon, as just described, but break ups initiated by companies themselves are quite common—nearly as frequent as mergers and acquisitions. That is because most large corporations are multi-business entities that constantly search for improved performance. One source of this involves merging with or acquiring other companies, but another involves divesting parts of their own business. One compilation of 86 of the Fortune 100 companies reported a total of 2307 mergers and acquisitions in the 1990s and fully 1611 divestitures during the same period (Villalonga and McGahan, 2005). The average company engaged in about three acquisitions and two divestitures per year.

The motivations for divestitures are the same as for acquisitions--to increase profit or shareholder value or some similar performance metric, and to do so by shedding as well as acquiring or managing businesses. Literature on "core competence," "pure play" businesses, and "conglomerate discount" reflect this periodic emphasis on narrower, more focused corporate structures. A considerable literature is devoted to evaluating the relative merits of restructuring alternatives. What is relevant about these experiences for our purposes is the process of divestiture--precisely how divestitures are designed and implemented, and what have been the correlates of a successful and efficient process.

Data and case studies suggest a range of factors and strategies, which is unsurprising given the diverse nature of the circumstances (e.g., Jacobides, 2005). But what also seems true is

[20] Van Loo echoes this sentiment, argues that "it would be perplexing if these cases [American Tobacco, Standard Oil] continue to shape perceptions of divestitures." Van Loo, op. cit. p. 16.

that there are significant commonalities that have not often been recognized.[21] For example, break ups are often along the fault lines marking different parts of the company. This is often due simply to the fact that the divestiture reverses a past acquisition (as with GE), but in other cases it is the result of parts of the overall business diverging in their fundamental nature, needs, and opportunities (HP, for example). Where one part of the business has not performed well or is actually harming the performance of other parts of the company, it is a candidate for divestiture. Furthermore, successful spin offs require a full package of assets in order to succeed post-divestiture. Failure to provide for necessary physical, contractual, and management capabilities can doom a divestiture—a phenomenon repeatedly noted in the case of policy-initiated divestitures as well.

A 2014 Bain & Company study (Bain, 2014) of some 40 divestitures involving companies valued at more than $1 billion in 2014 lists five different areas requiring attention and action in support of successful breakup. These include business unit strategy, target P&L, operating model, processes and talent, and culture. It described the divestiture process as typically "long, complex, and costly," taking 12 to 18 months and costing an average of 1% of revenue, much of that concentrated in SGA in the first year of separation.

These and other aspects of successful corporate divestitures are illustrated by such cases as Dupont and Conoca in 1999, eBay and PayPal in 2018, Pfizer in 2012, and AOL-Time Warner in 2009. These cases all involved the undoing of prior mergers, so there were fairly clear fault lines between operations that could be used to guide their break ups. Dissolution of more integrated private corporations are frequent as well. Prominent cases include HP in 2015 and GE's on-going restructuring and fragmentation.

[21] See Van Loo, op cit.: Patel, op. cit.

These experiences underscore how frequently even prominent firms undergo self-initiated break up. They also complement the lessons learned from policy-driven break ups, as summarized in the next section.

VI. LESSONS AND APPLICATIONS

We draw several lessons from this review of experience and research. First and foremost, both dominant firms and consummated merger have been broken up a considerable number of times. These experiences seem generally to have occurred without major adverse consequences—indeed with few minor adverse consequences—for the post-breakup firms. Moreover, where assessments have been made, these experiences seem to have beneficial effects in terms of fostering or restoring competition in the relevant markets.

At a practical level, we offer some insights from experience and analysis in this paper. First, with respect to consummated mergers:

(1) As a general matter, the first step in breaking up consummated mergers for competition reasons is to consider reversing the merger in its entirety.

(2) If those lines have become blurred due to integration over time, policy should consider restoring competition by requiring divestiture of assets (including licensing of IP) sufficient to constitute a firm of comparable competitive force.

(3) Policy needs to be sure to divest a sufficient bundle of assets to ensure viability of the resulting divested operation.

(4) This process would be facilitated to the extent that merging companies might be required to provide postmerger data on their structure and operation for some reasonable period of time.

In the case of dominant firms, we draw the following policy implications:

(1) Since dominant firms tend to be serially acquirers of other firms, the first step would be the same as for consummated mergers, namely, to consider reversing the firm's acquisitions that have proven to be anticompetitive.

(2) If that is not appropriate or feasible, the next alternative would be to search for "fault lines" that delimit important separable parts of the firm, even if they do not perfectly match an acquired firm.

(3) Related to that, distinct products and services that are potentially or actually competitive with the core platform or complementary to it, could represent candidates for separation.

(4) Policy would benefit from a requirement that major firms routinely report financial and operating data based on their lines of business.

These lessons can serve as initial guidance concerning the process of breaking up consummated mergers and dominant firms. To see how these lessons might be applied we briefly consider the cases of Google and Facebook. One straightforward initiative in the case of Google would be to separate Search from Android: it should be no longer possible for Google to operate simultaneously in the placement of the OS and in the positioning to make combined bundled offers of an OS and a search engine. Beyond that, Android could be offered to OEMs on commercial terms that do not depend in any way on the use of Search.

Another obvious candidate is digital display advertising. Google's acquisition of DoubleClick in 2008 formed the basis for its expansion and increasing dominance into all stages of the digital adtech stack (advertisers' servers, publishers servers and exchanges), supported by Google's own network of properties (YouTube, Gmail etc) which are at the same time the real estate on which ads can be displayed and a major source of data on users. Google's multi-layered set of conducts that are mutually reinforcing have led to the near extinction of rivals at various

stages of the stack, as well as enabled the extraction of rents by Google. Because Google has comingled assets and operations since the acquisition of DoubleClick (and rebranded several times) there may no longer be a DoubleClick business that could be de-merged. The solution would therefore likely require prohibiting Google from operating at all levels of the stack at the same time: it cannot operate for an advertiser, and simultaneously operate an exchange and operate for a publisher. This would require in effect vertical separation and possible sale of some parts of the stack.

With respect to Facebook, there is now substantial agreement that its acquisition of Instagram in 2012 and WhatsApp two years later likely diminished competition in social media. Since to date Facebook has operated those platforms largely separately from its core business, a policy decision to reverse those mergers could take advantage of that separation. Indeed, in the recent US Judiciary Report "Investigation of Competition in Digital Markets", a former employee of Instagram explained the possible ease with which Facebook and Instagram came together—and could potentially be pulled apart (page 151):

> "Why can't Facebook fork the backend of the product? Facebook makes an odd argument that they use the same system. But you can just copy and paste code, make a copy of the system, and give it to the new company. If you can put them together, you can pull them apart. Facebook can always pull out the data that Instagram would not need. They spent the last year pushing the two products together, it just simply doesn't make sense that they can't work back to where they were in 2019. It's not like building a skyscraper and then suddenly needing to knock the building down again. They can just roll back the changes they've been making over the past year and you'd have two different apps again. It's not about the pipeline. It's an intangible object. You can just copy and paste. Right now, they have a switch inside the app. They could just change something from true to false and it would work. It's not building a skyscraper; it's turning something on and off."

In addition to these examples, in the Appendix to this paper, we describe in some detail the distinct parts of each tech company's business. We distinguish those parts that have resulted

from acquisitions since, cet. par., they would be more readily separated, from those that have been internally developed but nonetheless appear to be distinct business operations. Both are distinguished from the "core business" of each firm in order to give insight into how diverse ("conglomerate") each of the companies have become.

VII. CONCLUSIONS

Our purposes in this paper have been quite simple. We have sought to restore break up and divestiture to the toolkit of competition policy by demonstrating that such a policy is not the equivalent of unscrambling eggs. There is ample precedent for such a policy, both with respect to dominant firms and consummated mergers. Regulators as well as competition agencies have sometimes hesitated but often pursued exactly that policy, with considerable success. Private companies undertake such activity almost as often as the engage in mergers and acquisitions. Further, we have suggested lessons from past experience for how break ups can be pursued and illustrated these lessons with some examples.

We do not underestimate the problems and costs that may well accompany policy-driven divestitures. And we do not contend that breakups are always the best policy. Rather, our perspective is that this is a tool that should not be taken off the table, especially in light of the limitations of the alternatives. Past experience underscores the feasibility of break ups, the value of the break up alternative, and the need for close study of how best to undertake such a policy. When structure is an essential part of the problem, altering that structure should be considered part of the policy solution.

REFERENCES

Acemoglu, D., A. Makhoumi, A. Malekian, and A. Ozdaglar (2020). "Too much Data: Prices and inefficiencies in data markets", NBER Working Paper No. 26296

Autor, David, David Dorn, Lawrence Katz, Christina Patterson, & John Van Reenen (2017). *Concentrating on the Fall of Labor Share*, AMERICAN ECONOMIC REVIEW 107(5), 180-85

Auriol, E., C. Crampes and A. Estache (2020). *Regulating public utilities: bridging the gap between theory and practice*. Cambridge University Press

Barkai, Simcha (2020). "Declining Labor and Capital Shares", *Journal of Finance*, 75, 2421-63

Barros, Pedro Pita (2003). "Looking behind the curtain—effects from modernization of European Union competition policy", *European Economic Review*, 47, 613-624

Bourreau, M., Caffarra, C., Chen, Z., Choe, C., Crawford, G. S., Duso, T., Genakos, C., Heidhues, P., Peitz, M., Roende, T., Schnitzer, M., Schutz, N., Sovinsky, M., Spagnolo, G., Toivanen, O., Valletti, T. and T. Verge' (2020). "Google/Fitbit will monetise health data and harm consumers", CEPR Policy Insight No. 107

Cave, M. (2006). "Six Degree of Separation: Operation Separation as a Remedy in European Telecommunications Regulation", *Communications and Strategies*, 64, 1-15

Cave, M., C. Genakos and T. Valletti (2019). "The European Framework for regulating telecommunications – a 25-year appraisal", *Review of Industrial Organization*, 55, 47-62

Center for American Progress (2020). *Using Antitrust Law To Address the Market Power of Platform Monopolies*

Choi, J., D-S. Jeon, and B-C Shin (2019). "Privacy and personal data collection with information externalities", *Journal of Public Economics*, 173, 113-124

CMA (2016a). *Retail Banking Market Investigation*

CMA (2016b). *BAA airports: evaluation of the Competition Commission's 2009 market investigation remedies*

CMA (2020). *Online platforms and digital advertising Market study final report*

CPI (2019). *US: Amazon admits it uses aggregated seller data to help business*

Cosnita, Andreca, and Jean-Philippe Tropeano (2013). "Ex post or ex ante: On the Optimal Timing of Merger Control"

Council of Economic Advisers (April 2016). *The Benefits of Competition and Indicators of Market Power*

Cremer, J., Y-A de Montjoye and H. Schweitzer (2019). *Shaping Competition Policy in the Era of Digitisation*, Report for the European Commission

De Loecker, Jan, Jan Eeckhout, and Gabriel Unger (2020). "Of Market Power and the Macroeconomic Implications", Quarterly Journal of Economics, 135(2), 561-644.

Federal Trade Commission (2017). "The FTC's Merger Remedies 2006-2012."

Fletcher, A. (2020). "Market Investigations for digital platforms: panacea or complement?", mimeo, University of East Anglia

Gal, Michal and Nicholas Petit (2020). "Radical Restorative Remedies for Digital Markets", *CPI*

Gavil, Andrew and Harry First (2014). *The Microsoft Antitrust Cases: Competition Policy for the Twenty-first Century*. Cambridge, Massachusetts; London, England: The MIT Press.

Google/DoubleClick, F.T.C. File No. 071-0170, (2007). Dissenting Statement of Commissioner Pamela Jones Harbour

Gowrisankaran, Gautam, Aviv Nevo, and Robert Town (2015). "Mergers when prices are negotiated: Evidence from the Hospital Industry", American Economic Review, 105, 172-203

Grullon, Gustavo, Yelena Larkin, & Roni Michaely (2019). "Are U.S. Industries Becoming More Concentrated?", REVIEW OF FINANCE 23(4), 697–743

Haas-Wilson, Deborah, and Chris Garmon (2011). "Hospital mergers and competitive effects: Two retrospective analyses", *International Journal of the Economics of Business*, 18(1), 17-32

Hagey, Keach and Vivien Ngo How (November 7, 2019). "Google Edged Out Rivals and Built the World's Dominant Ad Machine: A Visual Guide", *Wall Street Journal*

Hovenkamp, Herbert (2020). "Antitrust and platform monopoly", University of Pennsylvania Law School, Research Paper No. 20-43

Jacobides, Michael (2005). "Industry change through vertical disintegration: How and why markets emerged in mortgage banking", *Academy of Management Journal*, 48(3), 465-498

Kades, Michael and Fiona Scott Morton (2020) "Interoperability as a competition remedy for digital networks", Washington Center for Equitable Growth Working Paper Series

Khan, Lina, (2019). *The Separation of Platforms and Commerce*. Columbia Law Review, 119(4), 973

Kirkwood, John (2020) "Tech Giant Exclusion," Working Paper

Kwoka, John (2015a). *Mergers, Merger Control, and Remedies: A Retrospective Analysis of U.S. Policy,* MIT Press

Kwoka, John (2015b). "The Changing Nature of Efficiencies in Mergers and Merger Analysis," 60 *Antitrust Bulletin* 3, 231-249

Kwoka, John (2017). "Merger remedies: An incentives/constraints framework", *Antitrust Bulletin*, 62(2), 367-381

Kwoka, John, (2019). "Masquerading As Merger Control: The U.S. Department of Justice Settlement With Sprint and T-Mobile", American Antitrust Institute

Kwoka, John (April 2020). "Conduct Remedies, With 2020 Hindsight: Have We Learned Anything in the Last Decade?" *CPI Antitrust Chronicle*

Morris, Betsy and Deepa Seetharaman (August 9, 2017). "The New Copycats: How Facebook Squashes Competition From Startups", *Wall Street Journal*

Mattioli, Dana (April 24, 2020) "Amazon Scooped Up Data From Its Own Sellers to Launch Competing Products", *Wall Street Journal*

Mattioli, Dana, Patience Haggin and Shane Shifflett (September 20, 2020) "Amazon Restricts How Rival Device Makers Buy Ads on Its Site", *Wall Street Journal*

Morton, Fiona. Scott and David C. Dinielli, (2020). "Roadmap for an Antitrust Case Against Facebook", https://www.omidyar.com/news/roadmap-antitrust-case-against-facebook.

Morton, Fiona Scott. and David C. Dinielli, (2020). "Roadmap for a Digital Advertising Monopolization Case Against Google", https://omidyar.com/wp-content/uploads/2020/09/Roadmap-for-a-Case-Against-Google.pdf

Nardotto, M., T. Valletti and F. Verboven (2015). "Unbundling the incumbent: Evidence from UK broadband", *Journal of the European Economic Association*, 13, 330-362

OECD (2014). *Report on roundtable on investigations of consummated and non-notifiable mergers*. OECD, Paris

OECD (2016), *Structural separation in regulated industries*. Report on implementing the OECD Recommendation. OECD, Paris

Ottaviani, Marco, and Abraham Wickelgren (2008). "Policy timing under uncertainty: Ex ante vs. ex post merger control"

Patel, Menesh (2019). "Merger breakups," U.C. Davis School of Law

Practical Law, 2020, Antitrust, Consummated Mergers Antitrust Enforcement Chart, PRACTICAL LAW CHECKLIST 7- 532-4454

Rey, P. and J. Tirole (2007). “A primer on foreclosure”, in Armstrong, M. and R. Porter, *Handbook of Industrial Organization*, vol. 3, chapter 33, Elsevier

Schechner, Sam and Valentina Pop (June 11, 2020), “Amazon to Face Antitrust Charges From EU Over Treatment of Third-Party Sellers”, *Wall Street Journal*

Schechner, Sam and Valentina Pop (October 21, 2020) “Europe’s Antitrust Push Against Google Hasn’t Dented Its Heft. Can the U.S.?”, *Wall Street Journal*

Stigler Committee on Digital Platforms: Final Report (2019). Chicago Booth School of Business

THE ECONOMIST (March 26, 2016). *Too Much of a Good Thing: Profits Are Too High. America Needs a Giant Dose of Competition*

Tunstall, Brooke (1985). *Disconnecting Parties*. McGraw Hill

UK Independent Report (2019), “Unlocking digital competition, Report of the Digital Competition Expert Panel”

Van Loo, Rory (forthcoming). “In defense of breakups: Administering a ‘radical’ remedy”, *Cornell Law Review*.

Villalonga, Belen, and Anita McGahan (2005). “The choice among acquisitions, alliances, and divestitures”, *Strategic Management Journal*, 26, 1183-1208

APPENDIX

In this Appendix we tentatively apply these principles to the major tech companies in order to identify the potentially separable business operations of each of the major tech companies. To be clear, this is not a set of recommendations for how the companies should be broken up for competition purposes. Rather, it is an outline of the parts of each company that might be subject to break up since they have resulted either from prior acquisition or from internal expansion into non-integral businesses, organized by type of business operation.

We also note that our tentative distinction between substitutes and complements is just a first, possibly natural, step, but without any antitrust implications (whereby, for instance, acquisitions of "complements" are typically seen as less problematic than acquisition of "substitutes"). With digital multi-sided platforms, acquisitions and integration are often in the form of annexations, that is, the owner of the platform, or one of its elements, annexes the tools, services, or agents of one of the user sides of the platform. This creates conflicts of interest rather than resolving them (e.g., preventing multi-homing, or self-preferencing). We leave these issues and distinctions, as well as a more definitive list, for another day.

Amazon							
	Sales Platform		Warehousing/Logistics		Others		
	Substitutes	Complements	Substitutes	Complements	Cloud Computing	Entertainment	Miscellaneous
Acquired	Zappos Souq	Quidsi Mama Bear Wag Whole Foods Pillpack		Zoox Kiva Systems	Annapurna Labs CloudEndure Elemental Technologies	Audible Twitch IMDb LoveFilm	Ring
Developed		Amazon Prime Amazon Basics			AWS	Prime Video Amazon Music Kindle Fire TV	Alexa

Apple				
	Hardware	Software/OS	Service	Machine Learning/Security
Acquired	Beats Intel Smartphone Modem PrimeSense Anobit	Shazam NextVR NeXT		Siri Lattice Data Turi Xnor.ai Topsy AuthenTec

Developed	iPhone iPad iPod Mac Airpods Apple TV Apple Watch	iOS macOS watchOS	Apple Pay Apple TV Apple Music iCloud iTunes eBooks	

Facebook				
	Social Feed/Messaging		Other	
	Substitute	Complement	Advertising	Gaming
Acquired	Instagram WhatsApp	Giphy Face.com	LiveRail Atlas Solutions Onavo	Oculus VR
Developed		Messenger		

Google								
	Search		Advertising		Cloud/Services		Other	
	Substitute	Complement	Substitute	Complement	Substitute	Complement	Devices (Computing/ Smarthome)	Alphabet
Acquired	ZagatI TA Software YouTube			AdManager DoubleClick AdMob AdSense Adometry AdmeId Wildfire Interactive	Waze	Apigee Looker Bebop	Android Nest Fitbit (?) Dropcam Motorola Mobility HTC Smartphones reCAPTCHA Postini	DeepMind Calico
Developed		Google Search Images Translate Scholar		AdWords		Gmail Chrome Google Drive Google Maps Google Photos PlayStore	Chromebooks	Google Fiber CapitalG GV Jigsaw Loon Sidewalk Labs Verily X Development Waymo Wing

Microsoft					
	Productivity and Business Processes		Intelligent Cloud	More Personal Computer (PC and Gaming)	
	Network/ Communication	Productivity		Computing (Hardware/Software)	Gaming
Acquired	LinkedIn Skype Yammer	Navision Great Plains Software Visio	Github Adallom	Nokia Mobile Phone Unit Affirmed Networks	ZeniMax Media Mojang Rare
Developed		Office 365 OneDrive	Azure SQL Server Visual Studio	Windows Surface Bing Microsoft Servers	Xbox (hardware, content, Live)