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**Original Article**

# Unscrambling the eggs: breaking up consummated mergers and dominant firms

**John Kwoka**[1] **and Tommaso Valletti**[2,*]

[1]College of Social Science and Humanities, Northeastern University, Boston, MA 02115, USA. e-mail: j.kwoka@northeastern.edu and [2]Imperial College Business School, Imperial College London, London, SW7 AZ, UK. e-mail: t.valletti@imperial.ac.uk

*Main author for correspondence.

## 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 USA and UK 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.

**JEL classification:** G34, K21, L40

## 1. 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. Many mergers not vetted or even approved by the competition agencies have proven anticompetitive and now remain untouched and seemingly untouchable. And it is clear that competition policy has been no obstacle to the rise of dominant firms in ecommerce, 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 proposals involve more vigorous application of conventional tools. For the tech companies, these include imposing new or strengthened access requirements, nondiscrimination provisions, and interoperability, either through actions by the agencies or by new digital regulatory bodies. With respect to mergers, proposals focus on strengthening agency capabilities through legislative changes that modestly broaden their powers and increase their enforcement resources.

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

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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 fully addresses existing conditions—the current non-competitive state of numerous important markets where past permissive policy has resulted in entrenched dominance. Second, they do not fundamentally alter the concentrated market structures that give rise—and will continue to give rise—to various anticompetitive practices. Reliance on this 'rules and remedies' approach, experience shows, is often a game of 'cat and mouse' as agencies try to prevent companies from engaging in anti-competitive activities, while the affected companies seek to avoid or evade constraints on their fundamental incentive to increase profit. After all, these companies typically have informational and technological advantages, 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 if not impossible 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. Too often, with that comment, most analysis ends. We do not accept these arguments as self-evident or the obstacles as insurmountable. We do not accept that breakups 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; other concerns are unproven, 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.

To be clear, we do not in this essay advocate breakups as the policy tool of choice in addressing the core monopoly platforms of the dominant tech companies. Even if that were feasible, absent other factors such as platforms' attempt to differentiate among themselves, it would more likely result in only a temporary fragmentation since the same forces that tipped the market toward a single dominant firm would again assert themselves. The competitive problems associated with core monopoly platforms likely require some form of regulation. But as a result of their acquisitions and strategic growth into other businesses, the tech companies have become far larger, far more powerful, and far more harmful to competition than their core platforms. We shall explain how these extensions of the core platforms can and need to be undone.

Moreover, as we shall see, 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 breakups of dominant firms in US antitrust and breakups of much of the regulated telecom, electricity, and other sectors in the UK and elsewhere. Many of these experiences with actual breakups have proven to be successful restructurings, with recognized benefits in terms of price, innovation, and investment. Those lessons should not be ignored.

We note in addition that breakups are quite frequent in private industry. While self-initiated and hence presumably profitable for the companies, these numerous voluntary divestitures demonstrate that breakups are by no means impossible, and indeed, these experiences have lessons for how best to devise and implement breakups. 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.

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Accordingly, our argument is twofold. First, we contend breaking up firms is an entirely feasible policy option that should be part of the toolkit of competition agencies and regulators. Second, we argue that breakups are in fact necessary in some cases where other policies predictably will fail to preserve or restore competition. To be clear, here we do not advocate specific actions against specific mergers or dominant firms. Nor do we claim that alternatives are always to no avail. Rather, our purpose is to set out some economic considerations and some lessons from past experience that can help inform a policy to break up such firms where justified by analysis of their competitive harms.

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 discuss some of the economic issues involved in breakups, including their rationale, costs, and practicability. Based on that analysis as well as actual experiences, we offer a framework for possible breakups and then apply this framework to some prominent cases in order to demonstrate its potential application.

## 2. The erosion of competition policy

### 2.1 Mergers, dominant firms, and policy

It is now recognized that mergers and acquisitions have contributed directly to increased market concentration throughout the economy and the rise of the major tech companies in particular. In the USA, mergers have transformed countless industries, including brewing, supermarkets, hospitals, car rentals, eyeglasses, crop seeds, industrial chemicals, meat packing, and wireless carriers, among many others. Detailed studies have documented the rise in concentration and in firm markups and a decline in the rate of new firms' entry and in the labor share of output.[2]

The dramatic growth of the five major tech companies—Amazon, Apple, Facebook, Google, and Microsoft—has been fueled by their enormous numbers of acquisitions as well as by internal growth of the core businesses. In the past 20 years, these companies have acquired a total of about 900 firms and counting, with the rate of acquisitions faster in the most recent 10 years (see also Parker *et al.*, 2021, in this issue). A number of these acquisitions have now been identified as major factors in these companies' entrenched dominance. 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,[3] but as noted our focus is not on these companies' core platforms. Rather, it is on the extensions and uses of those platforms.

This history of consolidation has also occurred as a result of lax competition policy. Data from one US agency, for example, show that it has ceased all enforcement actions against mergers resulting in more than six significant competitors in 2004 and then ceased for those with more than five in 2006, so that by 2008 it only took action against those with four or fewer remaining firms—and not against all of those.[4] This record of diminished policy is even more dramatic in the tech sector. Of the 900 acquisitions by these companies since the year 2000, the US antitrust agencies have investigated only a limited number, challenged exactly one, and ultimately blocked none. 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.

### 2.2 Remedies, rules, and incentives

Compounding the problem, once approved, few mergers have been subject to meaningful oversight, challenge, or remedy. With rare exception, initial agency approval of a merger is viewed as the key legal hurdle, past which there is little scrutiny. In the tech sector, mergers that in retrospect[5] seem very likely to be competitively problematic—such as Google's acquisition of DoubleClick and Facebook's acquisition of WhatsApp and Instagram—have until very recently

1 See for example, Khan (2019), Patel (2019) and Van Loo (2020).
2 Studies too numerous to mention support these findings.
3 Stigler Center (2019), Digital Competition Panel (CMA, 2020), Cremer *et al.* (2019).
4 See Kwoka (2020).
5 Not only in retrospect, but some of these were criticized at the time as competitively problematic. Regarding Google-DoubleClick, see for instance Jeon (2021). A descriptive ex post assessment of several digital acquisitions, including Facebook's, from a UK perspective, is done by Argentesi *et al.* (2020).

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been viewed as fait accompli and beyond the reach of the law, or at least of the agencies. And when the agencies do take action, their approach has generally involved methods with a demonstrated lack of effectiveness.

The standard approach to competition problems in the tech and increasingly in other sectors has been to impose a so-called conduct or behavioral remedy rather than to require divestiture or breakup of the company. A conduct remedy permits the merger (or growth of a company into new areas) to proceed subject to rules prohibiting the anticompetitive behavior feared—but facilitated—by a merger. Thus, a merged firm may be required to provide a crucial input to other companies at prices corresponding to some benchmark. Or, in case the merged firm supplies multiple products, it may be prohibited from insisting a buyer of its dominant product also purchase its other, more competitive products.

Such conduct remedies are intended to permit the merger but prevent the offending actions—a commendable objective but one subject to numerous limitations in practice. It is difficult for the agencies to define the exact conduct at issue, difficult to write operational prohibitions on that specific conduct, and difficult ex post to monitor and deter violations. And 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 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.

The contrast with the alternative remedy—divestiture—could not be sharper. Divestiture or breakup requires selling or spinning off an overlapping product or a new business operation. This results in the same number of independent sources of supply, each of which operates independently and has every incentive to act so as to maximize its own profit. In this scenario, reliance on competitive forces substitutes for continuing oversight by the competition agency. The same issues arise for tech companies' extensions into markets other than their core businesses.

While divestitures have their own pitfalls and limitations, policymakers recognize that they are superior to rules and remedies in order to address competitive problems. This is explicitly stated in European Competition Law, where the European Commission (EC) observes that structural remedies are easier to implement and do not require medium- or long-term monitoring measures.[6] In the USA 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 behavioral elements. Some recent cases in the USA have featured conduct remedies as well, raising concerns as to whether a true policy change has occurred.

With respect to mergers in the USA, much has been written about the efficacy of conduct remedies in the merger of Ticketmaster and Live Nation in 2010, the merger of Comcast and NBCU in 2011, and more recently the 2020 merger of Sprint and T-Mobile, among many others. In the first case, a condition of the approval of the merger was that Ticketmaster would not condition provision of Live Nation's "entertainment events" on whether the purchaser had also used Ticketmaster's ticketing services. Ticketmaster nonetheless did precisely this, contending that the language only prevented it from conditioning on provision of all Live Nation events, not any single one or a few. In this manner, the merged company effectively nullified the remedy for 9 years, and the event was then subject to no penalty for its strategic interpretation of the clause.

Analogous problems affected, and arguably negated, efforts to establish a transaction price in the Comcast–NBCU merger and to prevent anticompetitive information exchange in the Google–ITA merger, among others. The implication that runs through these experiences is the difficulty faced by the competition agency in fashioning a remedy that a determined and incentivized firm cannot evade or avoid.

6 Para. 15 of the 2008 EC Remedies Notice.

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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; most favored customer clauses that limit price competition from hosted sellers; and undermining competitors by withholding necessary information.

The attempted resolution of the US case against Microsoft through a conduct order illustrates this last-mentioned problem in the tech sector. The order required Microsoft to license to third parties its communications protocols for connecting servers to desktop computers. More specifically, the company was ordered to prepare and provide the necessary documentation within the first 3 years of the 5-year term of the consent order (First and Gavill, 2014). It soon became apparent 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 3-year deadline approached, Microsoft reported to the court that it would need additional 2 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, the Justice Department again renegotiated the terms of its order, allowing Microsoft a further 2-year extension. Those additional 2 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. 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 (EU)'s approach to tech sector mergers as more vigorous than that in the USA but recent examples illustrate many of the same problems and in all likelihood the same outcomes. One prominent example concerns Google, which has repeatedly failed to comply with EC orders, resulting in hefty fines—including €2.42 billion in the Google shopping case in 2017 and €4.34 billion in the Android case in 2018. In its shopping case, the EC set the objective of a remedy—a nondiscriminatory and "neutral" shopping site—and allowed the company to propose a method for achieving it.[7] With huge information advantages, with exceptionally strong financial incentives to perpetuate the conduct, and with inevitable ambiguities in the instruction, Google not surprisingly proposed a method that indirectly benefited itself, delayed any real resolution, and ultimately was subject to an ineffective remedy.

More specifically, Google 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 so it is unclear whether the feared "margin squeeze" has been avoided. A more recent attempt to improve matters resulted in a separate but equally inadequate gray *Comparison Shopping* link, but data show that few users click on this link, in part because it is shown on a hidden tab behind the default view. What is clear is that as of today Google wins most of the auctions, not rival CSSs.

This scenario has been repeated in the investigation of *Android:* the EC Decision mandated Google not to tie the Play Store with its search or engage in equivalent conduct. Language specifically prohibits Google from conditioning a Play Store license on the OEM entering into anti-fragmentation obligations and from 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 original equipment manufacturers

7 Thus in Shopping, the EC wrote (para 698): "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. 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." See Hoppner (2020).

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(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 the condition that they also pre-installed the Search app or Chrome. Following complaints, this proposed solution then veered toward 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 and DuckDuckGo) have to pay for inclusion. As a result, there is little change in terms of consumers actually choosing to pre-install alternatives to Google Search. The attempted remedy has essentially failed. Ostrovsky (2020) discusses the economic distortions arising from "choice screen" auctions of this kind, which are geared toward extracting as much revenue as possible from each user who installs them, at the expense of lowering the expected number of such users, and finds evidence of such distortions from Android choice screen auctions conducted in 2020 in the EU.

Another dimension of concern—data consolidation and exchange—is raised by Google's acquisition of Fitbit. Here, too, the limits of conduct remedies imposed by the EC in the form of "information firewalls" and promises are apparent. Google promises "not to use individual/personal Fitbit data for advertising," but this arrangement suffers from at least two problems. 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 information spillovers and externalities in data markets: predictions need not rely on individual/personal data, since the companies could train their algorithm on 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.[8]

## 2.3 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. Of course, we do not conclude that there are no circumstances when conduct remedies might merit consideration. Supply agreements, for example, are more plausibly effective when the product or service is simple and not subject to alteration and when the price is similarly simple. 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—or could be made—obvious to third parties. The problem here is that 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 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 (2020) reach similar conclusions. A recent report of the U.S. House of Representatives Judiciary Subcommittee on Antitrust (2020) also emphasized the need for structural solutions to competition problems in this sector. 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.

8 Bourreau *et al.* (2020). See also Choi *et al.* (2019) and Acemoglu *et al.* (2021). Other documented cross-uses of data have included Google's use of third-party advertising bid data to inform its own bids, and Amazon's use of consumer data from hosted businesses to identify products it might profitably enter. The fact that Google has denied this gives them an advantage. Amazon initially denied it was engaged in such an activity. See Feiner (2019) and Horowitz and Hagey (2021).

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For related reasons, "self-regulation" is also not expected to work with digital platforms when it comes to core areas of their business model. As argued in this issue by Cusumano *et al.* (2021), industry-led self-regulation can actually work reasonably well when the costs of intrusive government regulations are high, while at the same time the costs to each individual firms are low but coordination is needed. In this case, self-regulation is a good scenario since otherwise inaction could lead to an industry-wide tragedy of the commons and lack of trust. According to their analysis, this would be the case, for instance, in areas involving health or safety, or content related to terrorism or pornography, or curation of ratings and reviews. But when regulation threatens the core business model of dominant firms, these firms will respond with lengthy litigations and lobbying, so that self-regulation is not a credible option any longer.

## 3. Breaking up consummated mergers: issues, cases, and lessons

### 3.1 The issues

Merger control is normally an exercise in prediction, so unless a consummated merger is subject to ex post antitrust examination, virtually 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 at that time. That information is necessarily incomplete and in many cases subject to subtle shadings by the merging parties that 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, because of a lack of precedents.

Optimal policy design implies a more important role for ex post review and possible actions against consummated mergers under these circumstances. That framework analyzes the choice 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. Thus, a strong ex ante policy is likely to make an excessive number of errors, so that if policy is not to become excessively passive in the face of social harms, ex ante determinations should be supplemented with selective ex post actions—assuming that the actual effects can be discerned ex post and the costs of ex post action are not too great (Barros, 2003; Ottaviani and Wickelgren, 2008; Cosnita and Tropeano, 2013).

All of these considerations apply to merger control. Ex ante determinations are difficult and prone to error. Actual effects generally manifest themselves ex post, although some—such as the effect of a merger on technological change—may pose difficulties in establishing causation. The last consideration—the cost of breakup—is routinely said to be prohibitive, but there is in fact very little evidence to that effect, 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) described the process of constructing eight new companies out of the integrated Bell System as required in the US Justice Department case. The magnitude of the task seemed daunting—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 2 years.[9] Despite protests that the task and timetable were unrealistic, divestiture was in fact achieved, on time and with considerable benefits to competition.

In many cases breaking up a consummated merger may be simpler since the problematic part may be precisely the 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, that is, by separating it according to the "fault lines" defining its constituent parts. This solution would effectively represent the same policy of targeted divestiture that could have, and arguably should have, been employed at the outset. This would seem more likely to be the case, for example, with respect to a vertical merger or a merger of

9 Of course, in this case 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.

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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.

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.[10] Indeed, it may be the case that the greatest efficiencies and reasons for a merger arise precisely where the integration is most complete, underscoring difficulties in a breakup. In these cases, any breakup would be more akin to the case of restructuring a single integrated company, as will be discussed in the next section.

### 3.2 Some US cases

Challenges to consummated mergers are by no means unheard of in the US and other jurisdictions. Some of these challenges result from the failure to report a merger, or the failure to supply a full report, to the relevant competition agency. These are grounds for postmerger intervention in most countries [Organisation for Economic Co-operation and Development (OECD), 2014]. 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 USA and Latvia—interpret their statutes as permitting them.[11]

In the USA, a database of 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, suggesting that the investigations had in all likelihood simply not concluded before consummation of the merger. In those cases, little operational integration typically had occurred and so breakups did not pose major problems. In a few cases, however, the enforcement actions took place well after the merger was consummated, at which point the merged entity had more likely undertaken or even completed operational integration. Three actions out of 47 took place more than 3 years after the merger. 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 Federal Trade Commission (FTC) challenged the merger more than 5 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, research and development records, product contracts, customer lists, and operating manuals and related materials. The mandated divestiture took place, and both parties have survived and continue to produce these products.

The longest delay in challenging an acquisition that was previously cleared involved the Hearst Trust. That entity had long controlled a key drug information database and in 1998 acquired its main competitor Medi-Span. The merged company 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

10 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.

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

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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 thereby restore the original market structure. 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% (Haas-Wilson and Garmon, 2011).

In 2007 the FTC challenged this consummated merger and prevailed in the administrative portion of the case. But the full FTC panel, which makes the final decision, declined to adopt the trial court's recommendation for divestiture of the Highland Park Hospital. 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." Instead, the FTC 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 this type of remedy would do so.[12] This case illustrates the peril of reliance on conduct remedies when structural measures are required.

### 3.3 Market investigations in the UK

The UK's competition authority—the Competition and Markets Authority, or CMA—has Market Investigation powers that are considerably broader than in the USA and lead to a wider range of enforcement actions. In particular, it can identify and address "features" of a market that create an "adverse effect on competition," including not only firm conduct but also economies of scale and scope, network effects, regulatory and structural barriers, and consumer behavioral factors (Fletcher, 2020). 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. This may be useful in digital markets, which involve a wide and complex ecosystem.

In addition, the powers under Market Investigation authority include an extensive set of remedies, including regulatory remedies, demand-side remedies, supply-side remedies, and structural remedies—including breakups. 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). The precedent in the banking sector is relevant when it comes to Big Tech, as they share similarities, such as the treatment of data, and consumer difficulty in switching accounts.

Another important case relates to the 2009 Investigation of seven UK airports owned by the British Airports Authority, 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 breakup. The assessment also contains interesting reflections on the importance played by an independent monitoring trustee during the divestiture process (CMA, 2016b).

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

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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.[13]

### 3.4 A few lessons

These experiences make it clear that challenges to consummated mergers do occur with some frequency and success. Many occur shortly after the merger is consummated but others occur years later. 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. There are important examples where the US and UK competition agencies have in fact sought to undo mergers as well as lessons from cases where they have avoided doing so. In several cases, the breakups have involved divestitures of the previously acquired company, whereas in others it appears to involve assets equivalent to, and capable of, the functions of the acquired company. But most often, they succeed in reversing the competitively problematic merger, restoring a good measure of competition, and permitting the competition agency to step away from any regulatory role.

## 4. Breaking up dominant companies: issues, cases, and lessons

### 4.1 The issues

In principle, breakups of dominant firms differ according to (i) whether they involve the company's core business or a related operation, and (ii) whether the focus is on an acquired business or an organically developed operation. For example, AT&T was convicted of using its acquired 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 internally developed product to prevent more direct competition with its core 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.[14]

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 such divestiture would be to make the firm 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 scenario is one in which 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 a tendency toward tipping to monopoly. To the extent that is the case, breaking up the core platform of a firm like 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 followed by a shakeout of all but one dominant firm. That outcome might be forestalled if rival platforms differentiated themselves in order to appeal to somewhat different customer bases. Linux, dating apps, and newspapers are examples where competing platforms have succeeded in preserving multiple versions despite

13 'Competition watchdog reverses ruling on private hospital sales', Financial Times (March 22, 2016).

14 Morton and Dinielli (2020a) write "Google, largely through acquisitions, acquired all the necessary building blocks to amass dominance."

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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, policies such as data portability, open access, interoperability, and the like.[15] But ultimately the monopoly core of these businesses likely requires regulation.[16]

## 4.2 Some US cases

A number of US antitrust cases have involved efforts 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 and thereby achieving market dominance, as well as its 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 unlike other cases in that it was more of a pure monopoly structure. 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 had previously consolidated to form American Tobacco. That process was made complicated by the integration of certain functions like tobacco leaf purchasing at the corporate level breakup was nonetheless achieved in only 8 months. The three resulting companies persisted in some fashion for most of the 20th century, engaging in varying degrees of competition with each other.

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 little 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.

As noted earlier, 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 breakup 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.[17]

A more recent and famous US 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

15 Many authors, including Kades and Morton (2020) and Cabral *et al.* (2021), argue that interoperability should be an essential ingredient of competition policy toward tech companies. For a cautionary assessment of what interoperability and data portability can accomplish in the tech sector, see Jenny (2021) in this volume.

16 Moreover, we do not dispute that the tech sector has been responsible for a number of key innovations in ecommerce, social media, and search that have served consumers well. Our focus here is not on these companies' core platform, but rather on how their mergers, acquisitions, and expansions have exploited, extended, and cemented their dominance and thereby harmed competition—and how these latter practices can be effectively reined in. See also Parker *et al.* (2021) on how ex ante regulation should complement the assessment of mergers involving digital platforms.

17 While the US telecoms sector re-consolidated in more recent years, this was largely due to later regulatory decisions not to impose access obligations on local incumbents. Among other examples of regulatory breakups, Khan (2019) discusses railroads, banking, and others.

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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 and subsequently, the Department of Justice 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 effect of this remedy was unlike that from divestiture. The history associated with the effort to ensure disclosure of communications protocols, for example, has already been described above.[18]

### 4.3 Regulated industries in the UK and USA

Another area where there is a good deal of experience with the breakups of dominant companies is in regulated industries worldwide. It is noteworthy that there has been much less reluctance to break up firms in the regulated sector relative to instances of breaking up firms not subject to regulation. Notable, too, is the fact that these breakups have occurred without prohibitive costs or permanent damage to the companies. Moreover, reformers have at times underestimated the importance and value of ex post intervention.

The industries most often considered candidates for structural separations include telecommunications, electricity, and railways.[19] 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 provided those firms with wholesale access services. In the USA, the historically integrated "investor-owned electric utilities" were deintegrated in order to ensure that their monopoly business was not used to undermine competition at other stages.

In their efforts to foster competition, regulators have generally required some form 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 breakups. Interestingly, a common scenario is that regulators first try the milder and easier forms of separation, 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 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.[20]

18 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 EC 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.

19 See Auriol *et al.* (2021) for a general treatment of this subject.

20 In the telecoms sector, Cave (2006) 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.

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The telecom and electricity sectors in the UK and USA illustrate these alternative policies. European electronic communications were traditionally organized around state-owned posts and 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 (Cave *et al.*, 2019). A particularly interesting case is the UK experience with fixed broadband communications. The UK broadband market was initially dominated by BT, which transferred its dominant position in the telephone market to the new market of internet access and maintained it, thanks to the high entry barriers typical of a network industry. This setting changed when EU member states implemented a set of EC open-access regulations requiring incumbents to offer interconnection to their competitors under the supervision of national regulators.

The British regulator (Ofcom) 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. 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. The latter would allow entrants to start investing their own equipment in the so-called "last mile" to deliver faster broadband.

Ofcom considered the "nuclear" option of structural separation but instead of risking this alternative, BT agreed to a series of legally enforceable undertakings. It 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); and have its own board. Ofcom accepted the undertakings offered by BT—a total of 236. This functional (or operational) separation avoided full breakup, but it 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, but Openreach is still seen as still giving advantages to BT over its rivals. As the discussion continues, a full breakup may actually be in sight soon. A similar scenario has occurred in the US 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" (i.e. transporting) power across their lines to other customers by charging progressively marked up 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 coupled with a weak form of accounting unbundling but 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 advantages provided too many opportunities for integrated utilities to evade this requirement as well.

With the failures of these weaker steps, most US 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

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environment in the face of informational advantages to the company and misaligned incentives deeply embedded in an integrated structure.

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

### 4.4 A few lessons

This discussion makes it clear that there is ample precedent and experience with breaking up dominant firms. Despite variation in experiences, most breakups seem to result 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 breakups 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 an entirely plausible outcome.[21]

Of course, there is considerable room for improvement in the process. Some 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 where divestiture is used will benefit from experiences of the past.[22]

## 5. Self-initiated corporate breakups

Breakups of consummated mergers and large firms for competition and regulatory reasons are best described as not infrequent, but breakups initiated by companies themselves are in fact very common—nearly as frequent as mergers and acquisitions. Most large corporations are multi-business entities that constantly search for improved performance. One source of such improvement involves merging with or acquiring other companies, but another involves divesting parts of their own business that no longer offer such gains. One survey of 86 of the Fortune 100 companies reported a total of 2307 mergers and acquisitions in the 1990s and more than two-thirds that number—1611—divestitures during the same period (Villalonga and McGahan, 2005). The average company engaged in about three acquisitions and two divestitures per year.

The specific 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. 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 that there are significant commonalities that have not often been recognized.[23] For example, breakups 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's restructuring)[24]

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

22 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.

23 See Van Loo, op cit.: Patel, op. cit.

24 Alwyn Scott, 'GE breakup leaves it with best and worst performers', Reuters, June 26, 2018.

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but in other cases it is the result of parts of the overall business diverging in their fundamental nature, needs, and opportunities (e.g. HP).[25] 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.

What is especially relevant about these experiences for our purposes is the process of divestiture—precisely how divestitures are designed and implemented, what have been the correlates of a successful and efficient process, and how costly they may be. On this last point, a Bain & Company study (Pasternak and Wininger, 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 12–18 months and costing an average of 1% of revenue, much of that concentrated in administrative expenses in the first year of separation.

These and other aspects of successful corporate divestitures are illustrated by such cases as Dupont and Conoco in 1999,[26] eBay and PayPal in 2018,[27] Pfizer in 2012,[28] and AOL-Time Warner in 2009.[29] 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 breakups. Dissolution of more integrated private corporations is frequent as well. Prominent cases include HP in 2015 and GE's ongoing restructuring and fragmentation.

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

## 6. Implications, framework, and illustrative application

We draw several inferences from this analysis 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 (apart from outright costs, of course)—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 seek to restore competition by requiring divestiture of assets (including licensing of intellectual property) sufficient to recreate a viable firm of comparable competitive force. This may require divesting additional operations of the merged firm beyond any simple overlap but necessary to ensure the creation of the new business entity. While this may impinge on the merging parties, the purpose would be to transfer some of the policy risk to the merging firms.

25 Shira Ovide, Joann S. Lublin and Dana Mattioli, 'Hewlett-Packard Set to Break Up 75-Year-Old Company', The Wall Street Journal, October 6, 2014.
26 'DuPont to Complete its Divestiture of Conoco', The New York Times, July 10, 1999.
27 Tricia Duryee, 'Everything You Need to Know About eBay and PayPal's Split—and How it Impacts Amazon', GeekWire, 1 July 2015.
28 Pfizer Inc (2009). Press release to shareholders. Retrieved from Pfizer Inc.—Pfizer and Wyeth to Divest Certain Animal Health Assets to Boehringer Ingelheim.
29 James Quinn, 'AOL officially splits from Time Warner after 10 years', The Telegraph, December 9, 2009.

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(3) 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 serial 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 competitively problematic.
(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 the most important 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 implications 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, focusing on fault lines for possible breakup, not the competitive issues that would need to be addressed. One straightforward initiative in the case of Google would be to separate Search from Android: that would prevent Google from operating simultaneously in the placement of the OS and be in a position 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, and 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 enabling the extraction of rents by Google.[30] Because Google has comingled assets and operations since the acquisition of DoubleClick (and rebranded it several times), there may no longer be a distinct DoubleClick business that could be de-coupled. 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 2 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

30 This possibility was foreseen by one FTC Commissioner in her dissent from the decision to approve the merger. See Google/DoubleClick Dissent (2007).

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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, ceteris paribus, 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. And to be clear, we do not conduct the competitive analysis necessary to evaluate such a breakup, only to suggest how it *might* be done.

## 7. 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 precedent for such a policy, both with respect to dominant firms and consummated mergers. Regulators as well as competition agencies have often hesitated but when they have pursued that policy, it has met with success. Private companies undertake such activity almost as often as they engage in mergers and acquisitions. Further, we have suggested lessons from past experience for how breakups 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 breakups, the value of the breakup 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.

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## 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.[31] 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 traditionally seen as less problematic than acquisition of "substitutes").

31 Parker *et al.* (2021) in this volume offer a not-too-dissimilar taxonomy of functionalities of the tech companies, focusing only on mergers and acquisitions. They, too, distinguish between substitute and complementary acquired functionalities and add the category of those motivated by human capital or user base considerations.

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**Table A1** Identifiable Parts of Major Tech Companies

| | Amazon | | | | | | |
|---|---|---|---|---|---|---|---|
| | Sales Platform | | Warehousing/Logistics | | Others | | |
| | Substitutes | Complements | Substitutes | Complements | Cloud Computing | Entertainment | Miscellaneous |
| Acquired | Zappos<br>Souq | Quidsi<br>Mama Bear<br>Wag<br>Whole Foods<br>Pillpack | | Zoox<br>Kiva Systems | Annapurna Labs<br>CloudEndure<br>Elemental<br>Technologies | Audible<br>Twitch<br>IMDb<br>LoveFilm | Ring |
| Developed | | Amazon Prime<br>Amazon Basics | | | AWS | Prime Video<br>Amazon Music<br>Kindle<br>Fire TV | Alexa |
| | **Apple** | | | | | | |
| | **Hardware** | | **Software/OS** | | **Service** | **Machine Learning/Security** | |
| Acquired | Beats<br>Intel Smartphone<br>Modem<br>PrimeSense<br>Anobit | | Shazam<br>NextVR<br>NeXT | | | Siri Lattice<br>Data Turi<br>Xnor.ai<br>Topsy<br>AuthenTec | |
| Developed | iPhone<br>iPad<br>iPod<br>Mac<br>Airpods<br>Apple TV<br>Apple Watch | | iOS<br>macOS<br>watchOS | | Apple Pay<br>Apple TV<br>Apple Music<br>iCloud<br>iTunes<br>eBooks | | |
| | **Facebook** | | | | | | |
| | Social Feed/Messaging | | Other | | | | |
| | Substitute | Complement | Advertising | | Gaming | | |
| Acquired | Instagram<br>WhatsApp | Giphy<br>Face.com | LiveRail Atlas<br>Solutions<br>Onavo | | Oculus VR | | |
| Developed | | Messenger | | | | | |

(continued)



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**Table A1** (continued)

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

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



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