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A PROPOSAL FOR A STRUCTURAL REMEDY FOR ILLEGAL COLLUSION

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The good news is that competition authorities are regularly detecting and convicting cartels. The bad news is that competition authorities are regularly detecting and convicting cartels. That cartels continue to form is striking in light of the impressive list of advancements in enforcement in the last three decades.

Corporate (and individual) leniency programs have greatly improved the discovery, prosecution, and conviction of cartels. Beginning with the revision of the U.S. Department of Justice's program in 1993, corporate leniency programs can now be found in more than 60 countries and unions. The next phase of detection programs is in progress with whistleblower rewards and screening. Whistleblower rewards provide bounties to individuals who report suspected cartels and are not themselves part of the illegal activity. Initiated by South Korea and the United Kingdom, Hungary and Taiwan have recently been added to the list of countries offering whistleblower rewards. Screening is the use of market data to identify markets that might have cartels and warrant closer inspection. It is being used to various degrees by many competition authorities,[1] and has uncovered cartels in generic drugs (Mexico), road construction (Switzerland), retail gasoline (Brazil), shrimp (The Netherlands), ce-

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[1] At an ICN meeting of chief and senior economists in September 2016, 18 out of 28 competition authorities reported that they were engaging in some form of screening. Program, ICN Chief/Senior Economists Workshop, University of British Columbia (Sept. 12–13, 2016), www.sauder.ubc.ca/Faculty/Research_Centres/Phelps_Centre_for_the_Study_of_Government_and_Business/Events/~/media/Files/Events/ICN%20Workshop/ICN%202016%20Agenda.ashx (confidential presentation on file with author).

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ment (South Africa), ampoules (Chile), and subway construction (South Korea).

Turning to corporate penalties, government fines have vastly increased in the last 25 years in the United States and the European Union, and are on the rise in other jurisdictions. Customer damages have long been a substantial financial penalty in the United States, and are becoming increasingly common in other countries. Though these penalties are large in some absolute sense, apparently they are insufficient to dissuade some firms from forming a cartel. While increasing the level of fines is an option, they can only be raised so far before they jeopardize the financial stability of a firm.

Finally, there are individual penalties. An impressive 35 countries have criminalized participation in a cartel (or, in some cases, just bidding rings). In addition, the Antitrust Division of the U.S. Department of Justice has been increasingly aggressive in using this stick. Over the last 25 years, the percentage of defendants who have gone to prison has risen from 37 percent (during 1990–99) to 70 percent (2010–13),[2] and the average prison sentence has almost tripled from eight months (1990–99) to 22 months (2010–16).[3] However, the United States is an outlier in routinely putting cartelists in jail; only a few other jurisdictions have ever used incarceration. There are also individual fines and debarment, which keep convicted cartelists out of managerial positions, but their usage is not yet common.[4]

Even if all of these developments have resulted in substantial progress in the fight against cartels, the evidence is that current enforcement falls well short of being an effective deterrent. Many cartels continue to form and operate, which is true even in the United States where enforcement is very aggressive, corporate penalties are the highest (when government fines are combined with customer damages), and incarceration is routine and substantial. Furthermore, many of these cartels are not the product of rogue employees but rather are the result of calculated decisions by upper-level management. It would seem that collusion remains a viable business strategy in the eyes of many high-level executives.

If this experience tells us anything, it is that a competition authority needs more weapons in its arsenal. Towards that end, this article proposes a corporate penalty that would increase financial penalties (while posing less of a risk for a firm's financial stability than fines), would be compensatory for consumers (in some instances, more so than customer damages), and, most impor-

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[2] U.S. DEP'T OF JUSTICE, ANTITRUST DIV., CRIMINAL PROGRAM UPDATE 2014 (2014).

[3] U.S. DEP'T OF JUSTICE, ANTITRUST DIV., CRIMINAL ENFORCEMENT TRENDS CHARTS (2017).

[4] For a discussion of debarment, see Douglas H. Ginsburg & Joshua D. Wright, *Antitrust Sanctions*, 6 COMPETITION POL'Y INT'L 3 (2010); and Joseph Harrington, *Comment on Antitrust Sanctions*, 6 COMPETITION POL'Y INT'L 41 (2010).

tantly, would be corrective in the sense of making future collusion less likely (which is not a property of fines or damages).

The penalty is to require one or more cartel members to divest themselves of assets for the purpose of making the market more competitive. For example, it could have members of a cement cartel sell some of their plants to an entrant, or it could have an airline cartel of legacy carriers sell some gates and landing slots to low-cost carriers. Before a structural remedy of divestiture is dismissed as impractical and draconian, divestiture as an antitrust remedy is routinely used for mergers with anticompetitive effects and is accepted as a remedy for monopolization. In the early 1970s, the DOJ seriously considered imposing divestiture on members of a gypsum cartel, and in 2014 a structural remedy was used for a cement cartel in Brazil (though the circumstances were rather special). Both cases are discussed below.

The benefits of a structural remedy are described in Part I, while the associated costs are covered in Part II. A discussion of when and how to use divestitures is provided in Part III, while an examination of the legality of such a remedy is provided in Part IV. To argue the practicality and relevance of structural remedies, Part V provides some cartel cases for which they would seem feasible and possibly appropriate. While the discussion is at times conducted from the perspective of the United States (in that some arguments appeal to U.S. policy and jurisprudence), the arguments for a structural remedy are relevant to all jurisdictions.

I. BENEFITS OF A STRUCTURAL REMEDY

The structural remedy under consideration has one or more cartel members divesting some assets related to the production of the product or service. Those assets would either be sold to an entrant (e.g., a foreign supplier that is not currently in the market), a non-cartel member (if the cartel was not all-inclusive), or another cartel member. The asset reallocation would be designed to make the market more competitive, by which is meant that collusion is less likely and prices are lower under competition. Presuming that there exists such a reallocation of assets, this section examines the benefits of such a divestiture in terms of making recidivism less likely, deterring cartel formation from occurring in the first place, and compensating customers for the harm incurred. In discussing the merits of a structural remedy, it will often be compared with fines and damages though the proposal is to add a structural remedy as a penalty rather than have it replace either fines or damages.

A. STRUCTURAL REMEDY IS CORRECTIVE

By having had a cartel, a market has revealed itself to be predisposed to this illegal activity. If the market structure is left intact, collusion could reappear,

either again as explicit collusion or as tacit collusion. While fines and damages are a deterrent and damages are compensatory, neither is a remedy in the sense of modifying the market so as to make future collusion less likely.

Divestiture that modifies a market structure can make it less suitable for collusion and thereby at least partially "correct" for the propensity to collude. As collusion is more difficult with more firms, cartel members could be required to divest assets in order to create a new competitor. When the creation of an entrant is not viable (and the cartel did not comprise all firms), transferring assets from cartel members to other firms would result in less capacity being controlled by firms that have shown themselves willing and able to collude. Finding a divestiture that makes the market more competitive is discussed further in Parts III and IV (in the context of some specific cases).

A structural remedy for cartels is fully consistent with merger enforcement. If a proposed merger was predicted to have coordinated effects, it would be prohibited or approved with divestiture or some other remedy; hence, the intervention of the competition authority has affected market structure for the purpose of making collusion less likely. In the case of a cartel, the current market structure has shown itself to generate coordinated effects. As with the blocking of a merger, divestiture as a cartel remedy is the intervention of the competition authority to affect market structure for the purpose of making collusion less likely. In fact, divestiture is more compelling for a cartel than for a merger. A structural remedy is imposed on a merger with coordinated effects because the post-merger market structure *may* result in collusion, while a structural remedy is imposed on a cartel because the existing market structure *did* result in collusion.

The possibility of imposing a structural remedy on a cartel would be a valuable complement to merger enforcement. Even when coordinated effects are a recognized concern for a proposed merger, the emphasis of the analysis and the basis for a decision by a competition authority are often still on unilateral effects because they are distinctly easier to measure. There exists an established body of analytical methods for quantifying unilateral effects, while coordinated effects are more challenging to assess ex ante. In light of the difficulty in blocking or constraining a merger on the grounds that it might lead to collusion, it is then particularly critical to deploy ex post instruments such as divestiture when collusion does arise. A competition authority should not hesitate to reverse a merger when there is evidence of collusion in the post-merger environment.

The corrective benefit of divestiture exists regardless of the extent of recidivism, though it is obviously larger in magnitude when recidivism is more common. While there is conflicting evidence regarding the extent of recidi-

vism,[5] the focus of that debate is on a convicted cartel reforming to engage once again in unlawful collusion. Alternatively, those firms may instead choose to collude using more tacit means in order to avoid prosecution.[6] Divestiture that results in a market structure less conducive to collusion will make the return of collusion less likely, whether it is of the explicit or tacit variety.

A structural remedy would also deal with a loophole in competition law. Having agreed to a collusive arrangement while an illegal cartel, firms may continue with it after conviction while avoiding illegal communication. Explicit collusion is converted into tacit collusion by simply perpetuating the collusive arrangement. While the lack of communication may make it less effective, and it is likely to fall apart come the first major shock to the industry (such as entry or a significant decline in demand), it still means continued harm to consumers. If collusion is able to persist on its own momentum without express communication, there is currently no legal recourse to stop it.[7] A structural remedy would most likely prevent perpetuation of the collusive arrangement. For example, the reallocation of capacity would result in different market shares, so any market allocation scheme that was in place would need to be modified, and that would most likely require illicit communication. Or the creation of a new competitor would be sufficiently disruptive to make the perpetuation of the existing collusive agreement extremely difficult, if not impossible.[8]

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[5] For some evidence supporting the claim that recidivism is common, see John M. Connor, *Recidivism Revealed: Private International Cartels 1990–2009*, 6 COMPETITION POL'Y INT'L 101 (2010). However, a later article convincingly showed that recidivism is rare in the United States. *See* Gregory J. Werden, Scott D. Hammond & Belinda A. Barnett, *Recidivism Eliminated: Cartel Enforcement in the United States Since 1999*, CPI ANTITRUST CHRON., Autumn 2011.

[6] A well-documented example occurred in the market for turbine generators. After being part of the electrical equipment conspiracy in the 1950s, General Electric and Westinghouse used more subtle means in the 1960s and '70s that did not involve direct express communication. For details, see George A. Hay, *The Meaning of "Agreement" Under the Sherman Act: Thoughts from the "Facilitating Practices" Experience*, 16 REV. INDUS. ORG. 113 (2000); and Joseph E. Harrington, Jr., *Posted Pricing as a Plus Factor*, 7 J. COMPETITION L. & ECON. 1 (2011).

[7] However, it has been argued that post-cartel tacit collusion is illegal. *See* LOUIS KAPLOW, COMPETITION POLICY AND PRICE FIXING 422 n.5 (2013). I fully agree that, in principle, firms should be held liable for tacit collusion that would not have occurred but for the illegal collusion that took place. However, there are some challenging issues to pursuing a legal case. Are firms liable as long as prices remain "high" and, if so, at what point are prices low enough that they are no longer liable? Does that effectively amount to some form of price regulation? If it is most profitable for a firm to price high in the post-cartel environment because it knows that a lower price will be matched, do we expect a firm to price differently from that which maximizes profit? Answers are not easy but it is clear that the issue of residual "legal" collusion from an illegal cartel warrants more examination.

[8] That post-cartel tacit collusion is a real concern is evidenced by the vitamins cartel of the 1990s. Involving many vitamin markets, conviction had a differential impact on post-cartel prices depending on the number of suppliers. Prices fell sharply in a high fraction of vitamins markets with three or more suppliers but remained flat or fell very little in all but one of the

There are some precedents for the restructuring of a market in order to make it less conducive to collusion. Professor Donald Turner originally raised the possibility of divestiture as a remedy for tacit collusion that is immune to prosecution under the Sherman Act.[9] Given that a conduct remedy is infeasible for such cases,[10] Professor Turner suggested a "structural reformation of the industry" through the "divestiture of the dominant firms."[11] The United Kingdom's Competition & Markets Authority can, on its own initiative, conduct a market inquiry that could result in a remedy of divestiture if it is determined there is an "adverse effect on competition" (AEC).[12] Past collusion in a market could be the basis for an inquiry and for a structural remedy.

B. Structural Remedy Is Deterrent

As it currently stands, the sole role played by government fines is to deter. The threat of levying a financial penalty on a firm for having illegally colluded makes collusion less profitable from an ex ante perspective and, therefore, could deter some cartels from forming. That same role as a deterrent is served by a structural remedy that reduces prices when firms compete.

It is well recognized that in many (if not most) markets, firms' price-cost margins are distinctly above those that would prevail under perfect competition.[13] The implication is that price-cost margins and profits could be lower

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vitamin markets with two suppliers. *See* William E. Kovacic et al., *Lessons for Competition Policy from the Vitamins Cartel*, *in* THE POLITICAL ECONOMY OF ANTITRUST 149 (Vivek Ghosal & Johan Stennek eds., 2007). The most convincing story to explain this pattern is that duopolies replaced explicit collusion with tacit collusion and that proved infeasible for markets with more than two firms.

[9] Donald F. Turner, *The Definition of Agreement Under the Sherman Act: Conscious Parallelism and Refusals to Deal*, 75 HARV. L. REV. 655 (1962).

[10] As famously explained by Judge Stephen Breyer:

> Courts have noted that the Sherman Act prohibits *agreements*, and they have almost uniformly held, at least in the pricing area, that such individual pricing decisions (even when each firm rests its own decision upon its belief that competitors will do the same) do *not* constitute an unlawful agreement under section 1 of the Sherman Act. That is not because such pricing is desirable (it is not), but because it is close to impossible to devise a judicially enforceable remedy for "interdependent" pricing. How does one order a firm to set its prices *without regard* to the likely reactions of its competitors?

Clamp-All Corp. v. Cast Iron Soil Pipe Inst., 851 F.2d 478, 484 (1st Cir. 1988) (citation omitted).

[11] Turner, *supra* note 9, at 671.

[12] COMPETITION & MKTS. AUTH., MARKET STUDIES AND MARKET INVESTIGATIONS: SUPPLEMENTAL GUIDANCE ON THE CMA'S APPROACH 37 (2014, rev. 2017). "[Market studies] are examinations into the causes of why particular markets may not be working well . . . and may lead to a range of outcomes, including . . . taking competition or consumer enforcement action." *Id.* at 1–2. "Market investigations are more detailed examinations into whether there is an AEC in the market(s) for the goods or services referred." *Id.* at 3.

[13] According to a summary of a number of market studies, "There is a great deal of market power, in the sense of price-cost margins, in some concentrated industries." Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, *in* 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1011, 1052 (Richard Schmalensee & Robert D. Willig eds., 1989). Subsequent to that

and firms would remain viable. Thus, if firms are earning above-normal profits prior to collusion, divestiture that makes the market more competitive means lower profits when firms compete in the post-cartel environment compared to the pre-cartel environment. Like fines and damages, the value of those forgone profits is a financial penalty levied on cartel members. Rather than taking the form of a one-time payment as with fines and damages, the lower profits earned by firms from operating in a more competitive market occur indefinitely. Given that many cartels form in response to intensified competition, the prospect that competition could be even more intense in the future because of a structural remedy could well deter them from cartelizing.

Though I am not suggesting that a structural remedy replace fines and damages, it is useful to draw some comparisons with them. In terms of the monetary magnitude, a structural remedy could be more or less severe than a fine. There is nothing intrinsic in a structural remedy that implies a higher penalty. Nevertheless, there are several unique features that make it attractive as a deterrent.

In some cases, the magnitude of a fine is constrained by a firm's financial liquidity. The firm might not be in a financial position to pay a large fine or, if it did so, it could be left cash-constrained with a heightened risk of exiting the market. If capital markets were perfect, none of that would matter as long as the firm is still profitable in expectation. But capital markets are not perfect, and a fine could be limited because of the financial strain it would place on a convicted cartel member. Divestiture is, in essence, a financial penalty on the installment plan, which means financial constraints are less likely to be binding. Of course, a competition authority could levy a large fine and have firms pay it over time, and that does occur. Still, the general point is that the potential magnitude of the punitive impact of divestiture is less constrained by a firm's financial liquidity than is a fine.

Wholly independent of the issue of financial constraints, there are circumstances for which divestiture makes collusion unprofitable when fines or damages do not.[14] Fines (and also damages) will not deter cartel formation when the fine is sufficiently small or the probability of conviction and paying a fine is sufficiently small, as then the expected penalty is too low. In contrast, a structural remedy that lowers post-cartel profits (below what competitive profits would have been if firms had never colluded) can make collusion unprofitable even when the probability of conviction is low and the impact on post-cartel profits is not large. This result emerges when firms sufficiently

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review, there have been numerous studies substantiating that many markets have high price-cost margins.

[14] The ensuing discussion is based on the analysis in Joseph E. Harrington, Jr., *The Deterrence of Collusion by a Structural Remedy*, 160 ECON. LETTERS 78 (2017).

value future profits. When there is the prospect of a structural remedy, collusion presents firms with an intertemporal trade-off: higher profits in the near-term while colluding, lower profits in the long-term after having been caught and convicted (at least with some probability). If firms are sufficiently patient, then the long-term loss from divestiture will weigh heavier in their calculus and that could deter cartel formation. In those same circumstances, fines and damages would not necessarily be effective. And, as is shown by the economic theory of collusion, it is exactly when firms highly value future profits that collusion is most stable.[15] These highly patient firms will be able to sustain high and stable collusive prices but they will also attach a lot of weight to the lower long-term competitive profits if they are caught and convicted. Hence, a structural remedy delivers a severe penalty when it is most needed.

Moving from corporate profits to managerial utility, there is much evidence in the management literature that managers value firm size and growth.[16] There may be many reasons for this to be the case. It could be due to the phenomenon of empire-building and the managerial ego, or that a manager's compensation scheme depends on market share and sales growth. As opposed to fines and damages, which leave the firm's size intact, divestiture results in a smaller firm. Thus, managers may be deterred from colluding not only because of the prospect of reduced profit from a structural remedy, but also because it could mean they will be managing a smaller firm.

There is one existing corporate penalty that has some similarities to divestiture in how it acts as a deterrent. For bid rigging at government tenders, convicted cartelists may be prohibited from participating in future government procurement auctions for some period of time. Referred to as blacklisting, countries with this remedy include Canada, Colombia, Korea, Serbia, Slovakia, Ukraine, and (under a different regulatory process) the United States. Like divestiture, the penalty takes the form of reduced future profits and also means smaller firm size (as measured by revenue due to fewer procurement contracts). Though prohibition from participating in these auctions could indeed be highly punitive, it suffers from two weaknesses. First, and in contrast to divestiture, it results in higher (not lower) prices under competition because there are fewer firms. That implication leads to the second weakness: the punishment may not be credible. For example, if a bidding ring encompassed all firms that could supply the service being tendered, a government is unlikely to prohibit all feasible suppliers from participating in the auction.

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[15] For a description of the economic theory of collusion, see MASSIMO MOTTA, COMPETITION POLICY: THEORY AND PRACTICE (2004).

[16] A survey of studies on the determinants of executive compensation can be found in Kevin J. Murphy, *Executive Compensation*, *in* 3B HANDBOOK OF LABOR ECONOMICS 2485 (Orley Ashenfelter & David Card eds., 1999). Putting aside causality issues, a CEO's compensation is about 3% lower when the firm is about 10% smaller. *Id.* at 2493.

Even if the bid rigging was not done by all suppliers, there is still the credibility of prohibiting some suppliers given that it will make the government's task of getting the service at a reasonable price more difficult. Once firms realize the lack of credibility of the punishment, they will not be deterred from colluding.

C. Structural Remedy Is Compensatory

Going beyond serving as a deterrent, financial penalties can also be used to provide compensation to consumers who were harmed. Indeed, that is the primary rationale for customer damages. A structural remedy also benefits consumers because of the lower prices that it delivers. However, it is not focused on benefiting *past* consumers who purchased during the time of the cartel (as with damages) but rather *future* consumers who will purchase in the post-cartel period. In spite of this departure from the compensatory ideal, I argue that a structural remedy, under some fairly general circumstances, does a better job than customer damages—as they are implemented in practice—in compensating those consumers who were harmed.

The first obvious point is that a structural remedy which results in lower competitive prices serves the broad antitrust goal of consumer welfare for it raises the surplus received by future consumers. The more problematic issue is its effect on those consumers who were harmed by the cartel. Consider a market for a high expenditure durable good such as a television set. If a consumer purchased a television set during the time of the LCD screen cartel, he or she may not buy a television set in the near term and thus not benefit from the lower prices due to divestiture. However, that intertemporal structure of demand is far from universal. A customer's demand is persistent over time in many markets for many types of consumers, in which case if they bought during the time of the cartel, they are likely to benefit from the lower post-cartel prices due to divestiture. If the good is non-durable—such as bread, gasoline, and vitamins—then a customer who bought in the past (and was harmed by collusion) is likely to buy in the future (and will benefit from divestiture). Returning to durable goods and the LCD screen cartel, television manufacturers and electronics retailers were also harmed, and they will benefit in the future from lower input prices. More generally, industrial buyers who had been harmed by an intermediate goods cartel will very likely be buying during the post-cartel period and thus will benefit from a structural remedy that lowers competitive prices.[17]

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[17] There is an implicit presumption of demand persistence in courts' acceptance of vouchers as compensation. Implemented in some class action suits, harmed customers do not receive a monetary payment but rather a voucher for a future purchase. That vouchers compensate those consumers presumes that they will have an opportunity to use them, which means they will be purchasing again.

In many jurisdictions, customer damages are unavailable or face serious legal obstacles that make them rarely obtainable.[18] A structural remedy will then be the only source of compensation. However, even in those jurisdictions in which private litigants can collect damages, divestiture may do a better job than customer damages in compensating those harmed. In the United States, only direct purchasers have standing to sue for damages at the federal level (though indirect purchasers do have standing in about half of the states). For an intermediate goods cartel in which direct purchasers have a high cost pass-through rate, the higher cartel price for the input is largely passed through to final consumers. While the direct buyers may still be harmed because of lower demand for their products (coming from the higher final product price), most of the harm falls on final consumers. As indirect purchasers, they may not have standing to sue for damages. However, if the demand of final consumers is persistent over time, then they will receive compensation from a structural remedy. Divestiture will reduce the input price by making the upstream market more competitive, which ultimately lowers the final product price. Note that the high cost pass-through rate now benefits consumers. It is when final consumers are most harmed by an upstream cartel—because of a high cost pass-through rate—that a structural remedy is most effective in delivering those consumers post-cartel compensation in the form of lower prices. From a compensatory perspective, a structural remedy could actually be better than customer damages.

In sum, divestiture is a deterrent for managers and shareholders by lowering competitive prices and profits, and for managers by reducing firm size. Under conditions for which collusion can be most effective (specifically, firms highly value future profits), it can be more punitive than fines and damages. Divestiture is compensatory when a consumer's demand persists over time and, for intermediate goods cartels with a high cost pass-through rate, could be more effective than customer damages in compensating those consumers who were harmed. Finally, and most importantly, divestiture can modify a market structure to make it less prone to collusion and avoid continuance of the collusive arrangement through tacit means, thereby closing a gap in the enforcement of competition law.

II. COSTS OF A STRUCTURAL REMEDY

A. Evaluation and Implementation Costs

The social cost of a fine is largely the resources used to calculate it. The social cost of customer damages are more substantial as they involve private

[18] Legal obstacles can include high evidentiary standards and the inability to engage in discovery or pursue class action suits.

litigation with its fees for lawyers and economists, all to calculate damages and argue to the court why their calculation is correct. Still, given the scale of the offense in terms of consumer harm, these costs are generally small in relative terms.

While a penalty of divestiture may offer more benefits than fines and damages, structural remedies are also more costly to implement. To begin, there is the cost of evaluating the various options. A competition authority would need to use resources to assess various divestitures and identify one that will achieve the goal of making the market more competitive. This activity is routinely conducted for prospective mergers by competition authorities such as the Antitrust Division of the U.S. Department of Justice, the European Commission, and the U.S. Federal Trade Commission. A competition authority will evaluate the potential impact of a merger in terms of unilateral effects (i.e., impact on competitive prices) and coordinated effects (i.e., impact on the propensity for collusion). When the merger is deemed to be anticompetitive, conduct or structural remedies are typically considered, including those discussed here for cartels. All of these assessments seek to estimate the impact on firms' costs and prices. These tasks are challenging, but they are a routine part of a merger evaluation.

In a merger evaluation, the prospective merger parties also use resources as they argue that the merger will lower cost (so that price will not be higher) or that consumers are better off by virtue of better products, more innovation, or some other benefit. Similarly, cartel members can play a role by providing an assessment of the possible implications of a divestiture on costs and prices. Those evaluation and persuasion costs are also part of the total cost of a structural remedy. That these costs are routinely incurred as part of a merger evaluation is evidence that they are not prohibitive.

Next, there are the transaction costs incurred by the firms when they sell and buy the divested assets. As this is just a merger in reverse, firms incur these costs all of the time when they consummate a merger. In fact, in some cases, the divestiture might mean undoing a previous merger. Again, these costs are not prohibitive in light of their presence in commonplace business activities.

B. Error Costs

The more significant concern with a structural remedy, whether in the context of a cartel or a merger, is likely to be error costs. A divestiture must be identified that will make the market more competitive in terms of lower prices when firms compete and collusion is less likely. With regards to unilateral effects, a divestiture intended to lower prices might not do so because its impact on market structure is insufficient to affect competition or it causes

costs to rise, which counteracts any downward price pressure from increased competition. These error costs would be of a similar magnitude for mergers.[19]

The other error cost is that the divestiture does not make collusion less likely. It is less well understood how a change in market structure affects the likelihood of collusion than how it affects competitive prices. That is, economists understand competition more than they understand collusion. For example, shifting capacity from a large firm to a small firm is predicted to lower prices under competition. However, whether that capacity reallocation makes collusion less likely may depend on the entire distribution of capacity within the industry.[20] The error costs associated with determining whether a divestiture will make the market less prone to collusion are probably larger than determining whether prices will be lower under competition.

In drawing on the similarity with divestiture as a merger remedy, a caveat is in order. With a merger, there are (almost always) only two firms involved. Thus, the set of feasible divestitures is limited to what can be divested by those two firms. In contrast, a structural remedy for collusion could involve divestiture by more than two firms, in fact, as many firms as there are cartel members. That adds more options to be considered, so evaluation costs are likely to be higher. On the other hand, error costs could well be lower because there are more options, and a competition authority can focus on the divestitures most likely to yield the desired effect of more competition. With a merger that has anticompetitive effects, the competition authority must find a remedy or block it. In the cartel context, a competition authority has more discretion and can impose a structural remedy only when it is reasonably confident it will make the market more competitive.

The takeaway from this discussion should not be that the error costs of a structural remedy are determinative, though they are substantive. However, error costs are no more a reason to dismiss the use of a structural remedy than

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[19] Relevant to the issue of error costs, an internal study by the FTC concluded that divestitures associated with merger remedies were effective in that "[b]uyers typically acquired the assets needed to compete in the market," which is encouraging. FED. TRADE COMM'N, THE FTC'S MERGER REMEDIES 2006–2012: A REPORT OF THE BUREAUS OF COMPETITION AND ECONOMICS 12 (2017). The study also claimed that the remedy "replaced the competition that would have been lost or had been lost as a result of the underlying merger." *Id*. However, such a conclusion seems unwarranted given that the study did not examine prices or any other commonly accepted measure of the extent of competition.

[20] Some papers relevant to this issue are Olivier Compte, Frédéric Jenny & Patrick Rey, *Capacity Constraints, Mergers and Collusion*, 46 EUR. ECON. REV. 1 (2002); Helder Vasconcelos, *Tacit Collusion, Cost Asymmetries, and Mergers*, 36 RAND J. ECON. 39 (2005); and Iwan Bos & Joseph E. Harrington, Jr., *Endogenous Cartel Formation with Heterogeneous Firms*, 41 RAND J. ECON. 92 (2010). The subtleties in assessing coordinated effects in the context of a reallocation of capacity are exhibited in *Capacity Constraints, Mergers and Collusion*, which examines a prospective merger and some structural remedies for the French bottled water industry. Compte et al., *supra*. At the same time, the study shows that a proper analysis can be done.

they are a reason to dispense with merger evaluation and replace it with a rule that either allows or prohibits all mergers. What it does mean is that a structural remedy should be used only when those error costs are manageable. That depends on the particular market structure and the feasible set of divestitures.

III. GUIDELINES FOR USING A STRUCTURAL REMEDY

Towards providing some guidance in the use of a structural remedy, I discuss when divestitures are feasible, who should acquire the assets, and when divestitures should be used.[21]

A. FEASIBILITY OF DIVESTING ASSETS

A structural remedy should not be pursued unless there exists a reallocation of assets from cartel members to other existing or new firms that, with a reasonable level of confidence, will make the market more competitive. A necessary condition is that there are assets that could realistically be divested—for example, there are cartel members with multiple plants so that some of those plants can be divested, or cartel members are retail chains and some of their stores can be divested. If the industry has recently been subject to merger activity, divestiture could mean selling the assets from those mergers to existing firms or, roughly speaking, re-creating the firm that existed prior to the merger. For some cartels, a structural remedy is infeasible because it is not possible to divest assets in a manner that makes the market more competitive—for example, when all cartel members have a single plant.

Even when there are assets to be divested, it will not achieve the goal of lower prices if firms' costs rise due to scale economies. The issue of how a restructuring of an industry will impact firms' costs is a routine (though challenging) matter in merger cases. Just as prospective merger parties provide evidence that the merger will lower cost, cartel members for which divestiture has been proposed will attest to the inefficiencies that it will cause. As with mergers, it will need to be judged on a case-by-case basis.

When considering the possibility of divestiture-induced inefficiencies, there should be no presumption that the existing market structure is efficient from a cost (or welfare) perspective. Generally, the market structure that results from firms entering and exiting by their own volition—unconstrained by government intervention—neither minimizes cost nor maximizes welfare when there is imperfect competition. The reason is that a potential entrant's entry decision

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[21] For guidance as to structural remedies, see U.S. DEP'T OF JUSTICE, ANTITRUST DIVISION POLICY GUIDE TO MERGER REMEDIES (2011) [hereinafter DOJ, MERGER REMEDIES]. While that report is about the use of divestitures to achieve the pre-merger state of competition in the post-merger environment, much of the guidance is relevant to the current setting and its goal of improving the state of competition in the post-cartel environment.

is based on the profit it expects to earn and thus fails to take account of how it impacts consumer welfare and other firms' profits. For example, entry may be profitable for the entrant but reduce social welfare because its profitability is largely based on extracting profits from existing firms (which is a transfer and not an addition to welfare) and raises industry cost.[22] Furthermore, even if an unencumbered entry-exit process were to result in a cost-minimizing and welfare-maximizing market structure, merger activity is very likely to disrupt that process and prevent that socially desirable market structure from emerging or persisting. As is well known, many mergers are motivated by market power, not efficiencies, and that will be a driver causing markets to be excessively concentrated.[23] If, indeed, that is the current state of many industries, then divestiture is likely to push market structure in a welfare-improving direction.

B. Who Should Buy the Divested Assets

As discussed in Part II, error costs are a primary concern with the use of a structural remedy. Divestiture should be pursued only if the competition authority can be reasonably confident it will lower competitive prices and make collusion less likely. An important determinant of error costs is the firm(s) to which are sold the divested assets. If it is a new firm, then divestiture is very likely to result in lower price-cost margins under competition, and to make collusion more difficult. However, prices need not fall, and could rise, if the reallocation of assets raises firms' costs. The sale of the assets to an existing firm not supplying this market (such as a foreign supplier) may be ideal, for it brings a new competitor into the market without the possible competitive disadvantages associated with greenfield entry because of the lack of size, experience, and reputation.

Another set of natural acquirers are firms offering complementary products. Consider a cartel involving a subset of vitamins or chemicals or generic drugs (all of which have had confirmed or suspected cartels in the last two decades). A structural remedy could mean a cartel member selling a plant to another manufacturer in the same industry but that does not offer that particular product. The acquisition would extend its product line and allow it to take advantage of economies of scope in distribution and marketing. A third source of acquirers are firms that produce elsewhere in the vertical production chain. Examples of the latter are a wholesaler buying stores from a cartel comprising

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[22] From a welfare perspective, there is too much entry when firms offer homogeneous goods but there can be too little or too much entry with differentiated products. *See* N. Gregory Mankiw & Michael D. Whinston, *Free Entry and Social Inefficiency*, 17 RAND J. ECON. 48 (1986).

[23] For a discussion of the concern that markets are overly concentrated in the United States, see COUNCIL OF ECON. ADVISERS, ISSUE BRIEF: BENEFITS OF COMPETITION AND INDICATORS OF MARKET POWER (2016).

retail chains, and a concrete supplier buying cement plants from the members of a cement cartel.

When the transfer of assets to a new firm is not a viable option, their sale to a non-cartel member and, in particular, to a firm that has established itself as a maverick, is a possibility.[24] (Furthermore, the prospect of gaining assets as part of a structural remedy could discourage a firm from joining a cartel.) As the largest firms in a market tend to be cartel members, a structural remedy is likely to have assets going from larger firms to smaller firms (which were not part of the cartel), which means that firm asymmetries are reduced. As making firms more symmetric is believed to make collusion easier,[25] there is the risk that this divestiture could cause those previously recalcitrant smaller firms to now have an interest in colluding. That is a possibility that would need to be considered when examining which firms should be allowed to buy the assets.

Most challenging is when the cartel is all-inclusive, there are no potential entrants (like a foreign supplier), and the creation of a firm from scratch may put it at a competitive disadvantage. The one remaining option is to shift assets from some cartel members to other cartel members. While it is reasonably clear what kind of redistribution of assets would intensify competition, more problematic is whether it will make the market less hospitable to collusion. While the use of divestiture in those circumstances should not be dismissed, error costs could prove prohibitive.

C. When to Use Divestiture

Assuming that divestitures exist that would make the market more competitive, here are some circumstances for which a structural remedy is particularly compelling. First, it is more appropriate when collusion was highly effective, as measured by the length of duration and the magnitude of the overcharge. The past performance of a cartel is the most compelling evidence that a market is susceptible to collusion. The heightened risk of recidivism in such a market is most effectively addressed with a structural remedy. In addition, if firms anticipate a more severe penalty (in the form of divestiture) when collusion is highly effective, they may be discouraged from ever forming a cartel in the first place.

Second, a structural remedy is more suitable when collusion involved senior executives. Senior executives, as opposed to middle managers or sales representatives, will understand the potentially high cost of divestiture and,

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[24] Well recognized in merger analysis, a maverick is a firm that is sufficiently aggressive that its presence is an obstacle to effective collusion. *See* DOJ, MERGER REMEDIES, *supra* note 21, at 28; *see also* U.S. Dep't of Justice & Fed. Trade Comm'n, Horizontal Merger Guidelines § 2.1.5 (2010).

[25] MOTTA, *supra* note 15.

therefore, it is more likely to act as a deterrent. The imposition of a more severe penalty in those circumstances is consistent with fining practices in some jurisdictions. In the case of the *United States Sentencing Commission Guidelines Manual 2016* (Section 8A1.2), the involvement of "high-level personnel" (which means "individuals who have substantial control over the organization or who have a substantial role in the making of policy within an organization") adds to a firm's "culpability score," and a higher score translates into a higher corporate fine.

Third, a structural remedy should be used when some or all of the cartel members are repeat offenders. A repeat offender includes both recidivists (i.e., they previously colluded in the same market) and firms that participated in a cartel in a different market. Repeat offenders are evidence of a systematic tendency to collude, either at the level of the market or the corporation, and a restructuring of the corporation and market is more likely to be warranted. Imposing a harsher penalty on firms that have previously been convicted of collusion is consistent with fining guidelines in the European Union[26] and the United States.[27]

However, the use of divestiture by a competition authority may be limited when the cartel involves foreign firms. While competition authorities (specifically, those in China, the European Union, and the United States) have either blocked or mandated a structural remedy of mergers between foreign companies, those companies had the option of avoiding divestiture by forgoing the merger. In contrast, divestiture as a remedy in the case of a cartel would be required of firms and, if they are foreign, there could be legal or diplomatic hurdles. It may then be best to think of a structural remedy as relevant to cartels involving domestic firms. Fortunately (or not), there are many domestic cartels and, therefore, there will be ample opportunities to use a structural remedy.

IV. LEGALITY OF A STRUCTURAL REMEDY

There are several reasons to believe that a structural remedy in the form of divestiture would be legal. First, the use of divestiture in other antitrust cases provides a precedent for applying it to unlawful collusion. With regard to the

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[26] "Aggravating circumstances" include when "an undertaking continues or repeats the same or a similar infringement after the Commission or a national competition authority has made a finding that the undertaking infringed Article 81 or 82." Eur. Comm'n, Guidelines on the Method of Setting Fines Imposed Pursuant to Article 23(2)(a) of Regulation No 1/2003, 2006 O.J. (C 210) 02, ¶ 28.

[27] "If the organization (or separately managed line of business) committed any part of the instant offense" less than 10 years after a previous adjudication then 1 point is added to the culpability score, and if it is less than 5 years then 2 points are added. U.S. SENTENCING COMM'N, GUIDELINES MANUAL § 8C2.5 (2016).

United States, a structural remedy has been imposed in response to violations of Section 2 of the Sherman Act (which prohibits monopolization practices),[28] which then provides a basis for its use with firms that violated Section 1 of the Sherman Act (which prohibits collusion). Second, and has been noted, divestiture is routinely used in some jurisdictions in enforcing competition law that prohibits anticompetitive mergers. Third, a structural remedy is neither arbitrary nor excessively punitive in that its intent is to avoid future offenses.

More problematic from a legal perspective is that a structural remedy may involve unequal treatment of offenders. There may not be an appropriate set of divestitures that would have all cartel members divest a similar percentage of their assets, either because such a collection of divestitures does not exist (because of how assets are distributed and structured) or it does exist but would inadequately serve the goal of making the market more competitive. For example, a remedy might have only the largest cartel member divest some of its capacity, while not requiring other cartel members to divest. This concern of a disproportional remedy does not arise in the context of a merger because the firms involved in the merger only care how the remedy impacts the value of the merged firm and not how it differentially impacts the firms involved in the merger.

However, there are several reasons why a structural remedy that treats cartel members unequally is consistent with existing competition law. In the United States, there is the legal principle of "joint and several liability"—by which any cartel member could be required to pay customer damages incurred by all cartel members—and "no contribution"—by which a cartel member cannot achieve redress by suing other cartel members for damages that it paid. This principle recognizes that unequal penalties may be justified when higher goals are served:

> Proponents of a right to contribution advance concepts of fairness and equity in urging that the often massive judgments in antitrust actions be shared by all wrongdoers. In the abstract, this position has a certain appeal: collective fault, collective responsibility. But the efforts of petitioner and supporting *amici* to invoke principles of equity presuppose a legislative intent to allow parties violating the law to draw upon equitable principles to mitigate the consequences of their wrongdoing. . . . The very idea of treble damages reveals an intent to punish past, and deter future, unlawful conduct, not to ameliorate the liability of joint wrongdoers.[29]

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[28] Notable cases are the divestitures involving Standard Oil and AT&T. Standard Oil Co. of N.J. v. United States, 221 U.S. 1 (1911); United States v. AT&T, 552 F. Supp. 131 (D.C. Cir. 1982).

[29] Tex. Indus., Inc. v. Radcliff Materials, Inc., 451 U.S. 630, 635, 639 (1981).

Consistent with that perspective, a competition authority could have one cartel member bear the entire burden of divestiture if by doing so it promotes the goal of making "future unlawful conduct" less likely.

The principle of proportionality—the penalty should scale up with the offense in an appropriate manner—is well established in some jurisdictions, including some members of the European Union. In considering whether a structural remedy that treats offenders unequally ought to be prohibited because it violates proportionality, it is useful to draw on the rationale for imposing fines for competition law offenses:

> The European Court of Justice . . . indicated in *Musique Diffusion France* (Pioneer) that the underlying rationale for the imposition of fines is to ensure the implementation of [European] Community competition policy. The meting out of fines therefore serves two objectives: (i) the suppression of illegal activity and (ii) the prevention of recidivism.[30]

The European Commission's corporate leniency program implies unequal treatment in that those firms that cooperate with the competition authority receive disproportionately lower fines. Indeed, it can result in a firm paying no fines (even if it is the most culpable). Such unequal treatment can be justified because it serves the goal of "the suppression of illegal activity" in that it facilitates the conviction of other cartelists. If the only structural remedies that serve to make the market more competitive involve disproportionate divesting of assets, that unequal treatment can similarly be justified in that it serves the goal of "the prevention of recidivism." Like the disproportionate levying of fines under a leniency program, the disproportionate use of divestiture as part of a structural remedy would seem appropriate if it is necessary to achieve the objectives of competition law.

It has been presumed throughout this discussion that a disproportionate divesting of assets across cartel members implies a disproportionate distribution of penalties. That need not be so because a cartel member required to divest is not necessarily worse off than cartel members who are not. If the divestiture makes the market more competitive, then *all* assets in the industry are depreciated (i.e., realize lower profit per unit) and, therefore, all cartel members are worse off. All firms suffer from the lower price-cost margins resulting from the structural remedy, regardless of which firms were required to divest.[31]

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[30] Damien Geradin & David Henry, *The EC Fining Policy for Violations of Competition Law: An Empirical Review of the Commission Decisional Practice and the Community Courts' Judgments*, 1 EUR. COMPETITION J. 401, 401 (2005).

[31] That also means non-cartel members are harmed. Of course, non-cartel members were the beneficiaries of higher prices during the cartel period. It is therefore ambiguous how non-cartel members fare from rival firms having colluded and then from a subsequent structural remedy. More generally, competing firms are impacted by the anticompetitive conduct of rival firms and

However, if divestiture causes a firm to experience higher cost (due to scale economies), then that would imply greater harm to those firms that divested proportionately more assets. Also, if a divesting firm does not receive fair market value for its assets—due to insufficient competition among buyers of the assets—then it would be worse off. In sum, while the conditions of a particular case could result in the firms that divest more being harmed more, it need not be true that firms forced to sell proportionately more assets are worse off relative to other firms.

V. CANDIDATE CARTELS FOR A STRUCTURAL REMEDY

The objective of this section is to use some cases to show the relevance and plausibility of a structural remedy. Lacking the requisite data to make an informed evaluation, I am not proposing that divestiture should have been used for any of these cartels, but instead suggesting that it would have been worthy of serious consideration. The discussion is illustrative of how structural remedies could enter into a cartel case.

A. GYPSUM (UNITED STATES)

The Antitrust Division of the U.S. Department of Justice argued that the leading suppliers of gypsum colluded from some time prior to 1960 until 1973.[32] They were found guilty but the conviction was overturned on appeal (and then affirmed by the Supreme Court) on the grounds that intent had not been established.[33] At the time, George Hay was Director of Economics in the Economic Policy Office of the Antitrust Division and argued for divestiture on the grounds that "US Gypsum was a recidivist, thereby allowing us to make the argument that a structural remedy was needed."[34] He noted that a structural remedy was appropriate in that it satisfied three criteria: "First they were recidivists, permitting us to make the argument that structural conditions were a significant cause of the conduct. Second, all defendants were multiplant firms making the divestiture proposal apply more or less evenly. Third all defendants were domestic." Hay believed that a structural remedy "almost certainly would have been implemented except the Supreme Court overturned the conviction."

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the actions of the competition authority in response to that conduct. Collateral effects are an unavoidable consequence of enforcing competition law.

[32] The ensuing information is from *United States v. U.S. Gypsum Co.*, 438 U.S. 422 (1978).

[33] Firms engaged in the practice of directly communicating with each other to learn the prices that were being charged. At issue was whether they were sharing price information to collude or to comply with the Robinson-Patman Act and prevent customer fraud.

[34] All quotations are from email correspondence between George Alan Hay and Joseph Harrington, Feb. 1, 2017, and Feb. 10, 2017 (on file with author).

B. CEMENT

Cement cartels are, in many ways, a suitable setting for a structural remedy. Cement markets may well be the market most prone to cartels,[35] which suggests that existing penalties are insufficient and thus a more effective remedy—such as divestiture—is required. Divestiture will often be feasible because it is common for cement manufacturers to have multiple plants. While some of these plants will serve different isolated geographic markets and thus a change in ownership might not affect market concentration, some markets are overlapping in which case they will reduce concentration. In addition, divestitures can reduce the extent of multi-market interaction among firms, which is significant in cement markets, and is known to facilitate collusion. Finally, these divested plants could be sold to a foreign cement manufacturer and thereby bring a new competitor into the market. Global cement companies have been engaging in such acquisitions for years.

1. *Germany*

By way of example, Germany had a cement cartel that ran from at least 1991 to 2002.[36] The cartel involved the six largest cement companies (where their approximate market shares are reported): HeidelbergCement AG (26.1%), Dyckerhoff AG (16.0%), Schwenk Zement KG (13.9%), Readymix (12.9%), Holcim AG (10.3%), and Lafarge (6.9%).[37] Furthermore, some of the cartel members were recidivists in that a cartel had been detected in southern Germany in 1988.[38]

A structural remedy would appear to have been viable and appropriate. These firms had multiple cement mills and kilns, some of which could be divested. Dyckerhoff and Heidelberg jointly owned 4 mills with capacity of 4,830 tons/year and 3 kilns with capacity of 2,222 tons/year; Heidelberg owned 6 mills with capacity of 9,000 and 6 kilns with capacity 6,300; Lafarge had 3 mills with capacity of 3,480 and 3 kilns with capacity of 2,685; and

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[35] More than 20 countries have convicted cement cartels since 2000. *See* Joseph E. Harrington, Jr., *Thoughts on Why Certain Markets Are More Susceptible to Collusion and Some Policy Suggestions for Dealing with Them* 9–10 (OECD, Background Paper, Global Forum on Competition, Oct. 19, 2015). A review of all 249 cartels convicted in 22 developing countries during 1995–2013 found a cement cartel in eight of those countries. *Id.* at 9; *see also* Marc Ivaldi, Frédéric Jenny & Aleksandra Khimich, *Cartel Damages to the Economy: An Assessment for Developing Countries*, *in* COMPETITION LAW ENFORCEMENT IN THE BRICS AND IN DEVELOPING COUNTRIES 103 (Frédéric Jenny & Yannis Katsoulacos eds., 2016).

[36] For details on this case, see Joseph E. Harrington, Jr., Kai Hüschelrath, Ulrich Laitenberger & Florian Smuda, *The Discontent Cartel Member and Cartel Collapse: The Case of the German Cement Cartel*, 42 INT'L J. INDUS. ORG. 106 (2015).

[37] Market shares are for 2005.

[38] ROGER PIERENKEMPER, KARTELLBUßEN AUS RECHTLICHER UND ÖKONOMISCHER SICHT: DER PROBLEMFALL DER ZEMENTKARTELLE (2012).

Readymix had 6 mills with capacity of 5,980 and 3 kilns with capacity of 3,600.[39] For example, divestiture could have involved the sale of one mill and one kiln from each of Dyckerhoff, Heidelberg, and Readymix, possibly to a foreign supplier not currently in the market. That Readymix was acquired in 2005 by Cemex, a cement manufacturer from Mexico, suggests that Cemex would have been an interested buyer of those mills and kilns.

2. *Brazil*

A cement cartel operated in Brazil for two decades and was convicted in 2014.[40] The cartel fixed prices and used a market-sharing scheme that operated at the level of the region and allocated customers. It also acquired concrete plants which "prevented other competitors to access the raw material and compete in the market with the cartel members."[41] In addition to levying fines on six companies, six executives, and three associations that totaled almost US$1 billion, the Brazilian competition authority CADE required "assets divestment" to correct for the exclusionary acquisitions made by members of the cement cartel:[42]

> Due to the integration between cement and concrete plants, which was used as basis to the cartel functioning and to market closure, CADE imposed the divestment of cement and concrete plants aiming at reducing the entrance of new competitors barrier and encourage rivalry in the sectors. This decision is based in the Competition Law that determines that the agency is able to impose such remedies when the seriousness of facts or the public interests demand. The cement companies must divest completely any shareholding interest, minority or not, and eventual corporate crossings made by the cartel's cement and concrete companies. CADE also imposed the divestment of 20% of the concrete production capacity in the regions in which the condemned companies own more than one concrete plant. These assets can be sold conjointly or separately to any buyer that did not have any participation in the collusion. The 20% proportion was defined according to a technical analysis and it is believed to be a minimum participation percentage to be owned by a competitor to enable effective rivalry in one market.[43]

This situation is somewhat unique in that the remedy reverses the structural changes in the market that the cartel implemented in order to bolster internal and external stability of collusion.

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[39] Data is from CEMBUREAU—THE EUROPEAN CEMENT ASSOCIATION, WORLD CEMENT DIRECTORY (2002) (on file with author), and ANNUAL REPORT OF THE GERMAN CEMENT ASSOCIATION (2001–2002) (on file with author).

[40] Press Release, Admin. Council for Econ. Def., CADE Fines Cement Cartel in BLR 3.1 Billion (May 29, 2014).

[41] *Id.*

[42] *Id.*

[43] *Id.*

C. RETAIL PHARMACIES (CHILE)

Cruz Verde, Fasa, and Salcobrand are the three largest retail pharmacies in Chile with 92 percent of pharmacy sales.[44] They were convicted of price fixing over 2006–2008. Cruz Verde had 512 stores, Fasa had 347 stores, and Salcobrand had 295 stores. Salcobrand was formed from the merger of two chains, Salco and Brand, in 2000. A structural remedy could have been imposed that would have had the three chains divest, say, 25 percent of their stores. The acquiring firm would have had 289 stores, which is approximately the size of the smallest of the cartel members. These stores could have been sold to create a new firm, to one of the small chains in Chile, or to a retail pharmacy chain in a nearby country, such as InkaFarma which was the largest chain in Peru. More generally, divestiture is a viable remedy for cartels involving retail chains, including those operating in the gasoline market, for which there have been documented cartels.[45]

D. HOSPITALS (UNITED KINGDOM)

That structural remedies are being used to deal with the lack of competition (whether due to unilateral or coordinated effects) is exemplified by a recent case in a local health care market in England. The Competition & Markets Authority (CMA) determined that

> the following two structural features in the markets for the provision of privately-funded healthcare services to insured patients in central London are, in combination, leading to an [adverse effect on competition] AEC: a) high concentration, with HCA having a large market share; and b) high barriers to entry and expansion. . . . In combination, these features result in weak competitive constraints on HCA [and] is leading to customer detriment in the form of higher prices being charged by HCA than we would expect in a well-functioning market.[46]

The CMA imposed a structural remedy that had HCA sell two of its hospitals:

> We considered which hospitals HCA would need to divest in order to remedy, mitigate or prevent the AEC or customer detriment arising from the AEC. Our view remains that divestiture of either the Wellington Hospital together with the Platinum Medical Centre, or the London Bridge Hospital

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[44] Information on this case is from Jorge Alé Chilet, Gradually Rebuilding a Relationship: The Emergence of Collusion in Retail Pharmacies in Chile (Apr. 5, 2017) (unpublished Ph.D. dissertation, Hebrew University).

[45] For example, there was a cartel among gasoline stations in some towns in Quebec over 2005–2006. *See* Can Erutku & Vincent A. Hildebrand, *Conspiracy at the Pump*, 53 J.L. & ECON. 223 (2010); Robert Clark & Jean-François Houde, *Collusion with Asymmetric Retailers: Evidence from a Gasoline Price-Fixing Case*, 5 AM. ECON. J: MICROECON. 97 (2013); Robert Clark & Jean-François Houde, *The Effect of Explicit Communication on Pricing: Evidence from the Collapse of a Gasoline Cartel*, 62 J. INDUS. ECON. 191 (2014).

[46] COMPETITION & MKTS. AUTH., PRIVATE HEALTHCARE REMITTAL—FINAL REPORT at xi (2016).

> together with the Princess Grace Hospital, would be of sufficient scale and provide a sufficiently broad range of specialisms to be capable of creating a new competitor which would be likely to exert a material constraint on HCA.[47]

The use of divestiture in response to a lack of competition is occurring in some jurisdictions. The proposal here is to make it a systematic policy when that lack of competition is due to collusion.

E. AIRLINES (UNITED STATES)

In July 2015, the Antitrust Division of the U.S. Department of Justice opened an investigation into the domestic airline industry. The basis for the investigation is that firms may have been coordinating in restricting capacities, which then led to higher fares. While the DOJ closed the case in early 2017 for lack of evidence, private litigation continues after surviving a motion to dismiss by defendants.[48] It remains an open question whether firms are colluding. If, at some future time, there is a conviction, a structural remedy could be appropriate on the grounds that mergers created a market structure conducive to collusion.

In recent years, a series of mergers have resulted in the industry becoming highly concentrated. Currently, four airlines—American Airlines, Delta Air Lines, Southwest Airlines, and United Airlines—control approximately 80 percent of the nation's air traffic, with higher concentration on many route markets.[49] With some of these mergers, concerns were expressed about possible coordinated effects—for example, the merger of American Airlines and US Airways.[50] If it is determined that there was collusion, and given that the existing market structure is the result of mergers, then a natural remedy is to de-concentrate the industry through divestiture. Assets could either go to low-cost carriers (which were not part of the cartel) or to a new firm (which might, roughly speaking, mean reversing a previous merger). Such a remedy would have intrinsic value in making future collusion more difficult in this market but also have reputational value. If merging firms recognize that post-merger collusion could result in the reversal of the merger, they will be less inclined to collude.

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[47] *Id.* at xiii.

[48] *In re* Domestic Airline Travel Antitrust Litig., 221 F. Supp. 3d 46 (D.C. Cir. 2016).

[49] Paula W. Render, *The Airlines Industry, Concentration, and Allegations of Collusion*, CPI ANTITRUST CHRON., Spring 2016.

[50] Complaint, United States v. US Airways Grp., 38 F. Supp. 3d 69 (D.C. Cir. 2014) (No. 13-cv-01236).

VI. CONCLUSION

In response to the lack of sufficient deterrence of cartels, it has been proposed that competition authorities consider using a structural remedy for cartels. The proposed remedy would have cartel members sell productive assets, such as capacity, to other firms in order to make collusion less likely and lower competitive prices. Compared to existing corporate penalties of government fines and customer damages from private litigation, divestiture is more of a deterrent under certain conditions, can be more effective at compensating those consumers harmed, and is corrective in reducing the likelihood of recidivism and preventing post-cartel tacit collusion.

While all competition authorities should consider the use of a structural remedy for some cartels, it is especially relevant where government fines are not particularly high, incarceration is not an option (either because the offense is not criminal or, as with a very high fraction of countries that have criminalized it, price fixers are not imprisoned), and customers cannot (or find it difficult) to sue for damages. Those characteristics describe the environment faced by competition authorities in most developing countries, though also many developed countries. In those countries, penalties are not sufficiently punitive to deter, and there is a lack of compensation for customers. A structural remedy meets the need for a more effective penalty and is a remedy for collusion.

In spite of the many benefits from a structural remedy, the proposal is not to use it as a matter of routine. Divestiture is not universally applicable like fines and damages. In some industries, there may not be a feasible way in which to consummate a transfer of assets in order to make the market more competitive. Then there will be industries for which it is feasible but the set of possible divestitures may either have too small or too large an impact on market structure, or there is sufficient uncertainty about its impact. Divestiture will be a viable option only for some cartels.

Recognizing this limitation, the proposal is modest—it is that divestiture be included in a competition authority's array of penalties and that a competition authority actively look for situations to use it. Competition authorities should be especially diligent about considering its use when the cartel was highly effective, involved high-level executives, or included repeat offenders. It is also worth noting that having a structural remedy at its disposal (with some credibility of using it) would enhance a competition authority's position when negotiating with cartel members over guilty pleas, fines, and conduct remedies. Firms will be more inclined to compromise if there is the possibility of divestiture lurking in the background.

A competition authority may be disinclined to use a structural remedy because it requires more resources to implement compared to fines (though I am not suggesting that divestiture replace fines but rather supplement them).

However, doing so will resign a competition authority to a set of corporate penalties that we know are insufficient to adequately deter collusion. A structural remedy of divestiture is routinely used for mergers with anticompetitive effects and is accepted as a remedy in monopolization cases. It is time that divestiture is added to the arsenal of penalties for fighting the "supreme evil of antitrust."[51]

[51] Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 408 (2004).