



# Competition Policy International

## COLLOQUIUM: WHO SHOULD BE THE TARGET OF CARTEL SANCTIONS?

Should cartel sanctions target the perpetrators and not the shareholders? **Douglas Ginsburg & Joshua Wright** make the case; **Joseph Harrington, Pieter Kalbfleisch, Mariana Tavares de Araujo, and Donald Klawiter** respond

## A SYMPOSIUM ON CARTEL SANCTIONS

**John Connor, Rosa Abrantes-Metz & Patrick Bajari, Margaret Levenstein & Valerie Suslow, and Elisa V. Mariscal & Carlos Mena-Labarthe** analyze historic and economic issues involved in implementing cartel sanctions

## CHINA UPDATE: INTELLECTUAL PROPERTY

**Michael Jacobs & Xinzhu Zhang** look at compulsory licensing of intellectual property under China's new Anti-Monopoly Law

## NOTABLE ANTITRUST CASES

**Ian McEwin & Corinne Chew** present one of China's first abuse of dominance cases, *Baidu*

## THE CLASSICS

**George Stigler's Theory of Oligopoly** with an introduction by **Dennis Carlton & Sam Peltzman**



*Edited by David S. Evans*

# Competition Policy International

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# *From the Editor*

Antitrust authorities have pursued cartels with steadily increasing vigor over the last three decades. Guided in significant part by economics and game theory, authorities have both ratcheted up fines to discourage forming cartels and implemented leniency programs to encourage cartel members to rat on their partners in crime. Yet, despite massive fines and hefty civil damages in some jurisdictions such as the United States, business people still conspire against the public to raise prices. Even tossing the occasional price-fixer in jail has not dissuaded executives from entering into agreements with their rivals over prices. Of course, even an efficient criminal justice system does not eliminate all wrongdoing. Nevertheless, there is a widespread perception that antitrust is not doing enough to discourage price-fixing.

That, at least, is the thrust of most of the papers in this Autumn 2010 issue, which has cartels as its primary focus. Douglas Ginsburg & Joshua Wright kick off the discussion with a provocative article that argues for increasing punishment to the business people who participate in these price-fixing schemes. They suggest, among other penalties, preventing these people from working in their profession—debarment. More controversially, they advocate less emphasis on corporate fines which, they say, are felt mainly by innocent consumers and shareholders. Competition authority heads Pieter Kalbfleisch and Mariana Tavares react to these suggestions as do economist Joseph Harrington and lawyer Donald Klawiter. There is remarkable agreement, although each disagrees with elements of what Ginsburg & Wright propose.

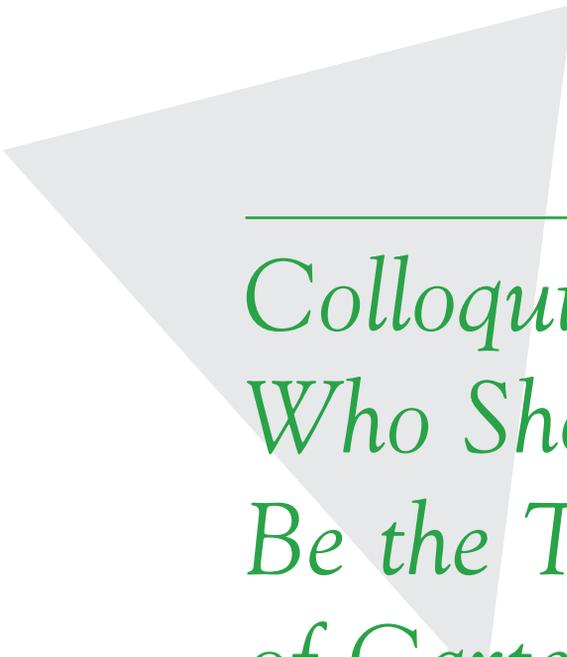
Continuing the cartel theme we move to four papers by economists on various aspects of cartel enforcement. John Connor shares his extensive historical research that documents the surprising frequency of repeat offenders among firms that have participated in cartels. Rosa Abrantes-Metz & Patrick Bajari examine how various statistical tests, “screens,” can be used to either help detect that prices have been fixed or provide some comfort they haven’t been. Margaret Levenstein & Valerie Suslow consider the “inability-to-pay” defense that is being increasingly invoked by companies caught for price-fixing in the wake of the recent financial crisis. The series ends with a survey by Elisa Mariscal & Carlos Mena-Labarthe of leniency programs in the quickly developing Latin American competition policy arena.

The next two pieces offer an interlude from the cartel theme and both turn to China, one of the most important—and confusing—areas that competition policy practitioners need to grapple with. Michael Jacobs & Xinzhu Zhang compare the U.S. and EU laws concerning compulsory licensing of intellectual property by dominant firms and examine what, if any, implications these very different approaches have for China and companies looking to do business there. For our case study this issue, Ian McEwin & Corinne Chew examine a Chinese Court decision on an abuse of dominance claim brought against Chinese search-engine giant Baidu. The case is significant because it involves a decision in the developing private action case law in China and entails a court’s attempt to analyze market definition and market power in a complex business. Our Spring 2011 issue will return to this case as part of our consideration of antitrust for the digital economy.

We end with a classic that ties nicely to the cartel theme: George Stigler’s enormously influential *A Theory of Oligopoly*. While this article pre-dated the game-theoretic treatment of this subject, it laid significant groundwork for how modern economics analyzes the interaction of a small number of firms. Much of the analytic framework followed by antitrust for cartels and tacit collusion is found in this 46-year old article. Dennis Carlton & Sam Peltzman explain the importance of Stigler’s contribution to modern economics and, in particular, its influential role in merger analysis.

On behalf of CPI’s readers and its editorial team, we extend our thanks to this excellent set of contributors for an insightful collection of articles.

David S. Evans  
University of Chicago and University College London



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*Colloquium:  
Who Should  
Be the Target  
of Cartel  
Sanctions?*

# Antitrust Sanctions

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*Douglas H. Ginsburg & Joshua D. Wright\**

In this article, we first discuss traditional deterrence theory as applied to optimal criminal antitrust penalties. Then we evaluate both the U.S. and EU experience with ever-increasing corporate fines and the available empirical evidence on the deterrent value of cartel sanctions. In the next part we turn to our claim that the conventional wisdom of ever-increasing corporate fines to solve the problem of under-deterrence is misguided. The determination of the optimal sanction for price-fixing should be guided by two principles: (1) the total sanction must be great enough, but no greater than necessary, to take the profit out of price-fixing; and (2) the individuals responsible for the price-fixing should be given a sufficient disincentive to discourage them from engaging in the activity. We propose altering the distribution of criminal sanctions for corporations and the individuals who fix prices on their behalf, and introducing sanctions for negligent officers and directors consistent with our two fundamental principles. Finally, we discuss the experience with debarment as a sanction in other contexts, and how it might operate in the context of U.S. antitrust enforcement.

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\*Respectively: Circuit Judge, United States Court of Appeals for the District of Columbia Circuit, and Associate Professor, George Mason University School of Law and Department of Economics. We gratefully acknowledge the research assistance of Eric M. Fraser, Jan Rybnicek, and Judd Stone and helpful comments from John Connor, David K. Kessler, Bruce Kobayashi, Abel Mateus, and participants at the American Law and Economics Association Annual Meeting.

## I. Introduction

Antitrust authorities across the world are increasingly concerned with fighting cartels, especially international cartels.<sup>1</sup> Countries previously without cartel prohibitions, including many in Latin America, Asia, and Africa, have in recent years adopted antitrust laws and begun to enforce them. Countries with long-standing cartel prohibitions have adopted corporate leniency policies and increased the resources they dedicate to antitrust enforcement, with the result that more cartels than ever are coming to light and being sanctioned. This development has also spurred closer cooperation among national enforcement agencies.<sup>2</sup> The widespread introduction of more aggressive efforts to detect and prosecute cartel activity has led to dramatically larger corporate fines and a slow but growing movement toward criminalization.<sup>3</sup>

Antitrust laws and enforcement agencies have largely followed the conventional wisdom that the primary cure for insufficient deterrence of hard-core cartel activity, such as price-fixing, is to increase corporate fines. For example, the United States and the European Union have in recent years pointed with pride and a sense of accomplishment to the large and increasing fines levied upon companies that participate in cartels.

In the United States, the statute governing fines for antitrust offenses was amended first in 1987 to provide the option of a fine set by doubling the greater of the defendant's gain or the victims' losses.<sup>4</sup> At that time, antitrust fines set without using this alternative option were capped at \$100,000 for individuals and \$1 million for corporations.<sup>5</sup> It was amended again in 1990 to increase the maximum personal fine to \$350,000 and the maximum corporate fine to \$10 million,<sup>6</sup> and yet again in 2004 to increase the maximum personal fine to \$1 million, the maximum corporate fine to \$100 million and the maximum jail sentence from three years (which it had been since 1974) to ten years.<sup>7</sup> The maximum fine that the European Commission may impose upon a company that violates the EU's competition laws is 10 percent of the company's global turnover but, under the 2006 EC Guidelines, in most cases hard-core cartel offenses warrant baseline fines up to 30 percent of relevant sales, which can be adjusted upward with virtually no limit.<sup>8</sup>

In both the United States and the EU, the average corporate fine has increased dramatically over the last 15 years. The EU has gone from collecting an average corporate fine of EUR 2 million in 1990-94, to EUR 46 million in 2005-09; U.S. average corporate fines have grown almost a hundredfold from \$480,000 during 1990-94, to \$44 million more recently.<sup>9</sup>

Despite the large and ever-increasing corporate fines, cartels—particularly international cartels—remain a substantial problem, and recidivism among price-fixers is not infrequent. The impossibility of observing how many cartels go undetected renders the empirical evidence that bears upon the issue subject to more

than one interpretation, but the data are largely consistent with cartel formation rates that, despite the growth in fines and the introduction of corporate leniency programs, imply current antitrust sanctions are an insufficient deterrent.

Although the corporation is the current focus of deterrence, there are in fact two potential targets for antitrust sanctions: The corporation and the individual who fixes prices on its behalf. There also two sources of antitrust sanctions: Law enforcement, which may fine both types of offenders, incarcerate individuals, and, as we propose, debar them from serving as corporate officers or directors; and the market, which imposes reputational penalties upon both types of offenders. The challenge for antitrust law is to coordinate these various corporate and individual sanctions to achieve the optimal total sanction.

We believe determination of the optimal sanction for price-fixing (and other cartel activities) should be guided by two fundamental principles. First, the total sanction must be great enough, but no greater than necessary, to take the profit out of price-fixing. If the expected value of price-fixing net of legal sanctions is positive, that is, if price-fixing is profitable, then the market will produce it. This point illustrates the complex interactions between corporate and individual sanctions. Where the conduct is profitable to the firm, and therefore increases its

share price, it is more likely that both firm and the individual perpetrator are rewarded rather than penalized by the market, thus increasing the total sanction necessary to provide optimal deterrence.

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Whether the first principle is satisfied depends, in part, on the level of sanctions imposed upon the corporation. With an appropriately calibrated corporate sanction, reputational penalties imposed upon the corporation

and its agents will reduce the individual fines and jail sentences necessary to achieve the desired level of deterrence.<sup>10</sup> On the other hand, if the corporate sanction exceeds this level, then it risks over-deterrence by providing an incentive for excessive corporate monitoring and compliance expenditures that are ultimately passed on to consumers in the form of higher prices and foregone products and, in any event, is likely inefficient. This point remains valid even if the optimal level of cartel activity is zero.

The second principle is that the *individuals* responsible for the cartel activity, whether they are engaged in, complicit with, or negligent in preventing the price-fixing scheme, should be given a sufficient disincentive to discourage them from engaging in that activity.<sup>11</sup> The U.S. Antitrust Division reasonably believes that “individual accountability through the imposition of jail sentences is the single greatest deterrent” to cartel activity.<sup>12</sup> A survey done for the U.K. Office of Fair Trading confirms that criminal penalties are the penalties of greatest con-

cern to business people.<sup>13</sup> A penalty scheme that is faithful to the first principle implies that at least part of the disincentive for the responsible individual will be market-based; the career prospects for a convicted price-fixer should be diminished, and certainly not enhanced, by his record of price-fixing. Because reputational sanctions are likely to be highly imperfect, however, it is important that the sanction be targeted directly at the responsible individuals, and not at their employers. The sanctions should also be proportional to fault. That is, the individual perpetrator should face a more serious sanction than the director or officer who negligently supervised the perpetrator. Note that although the first principle focuses upon calibrating sanctions to the optimal level of deterrence, the second principle emphasizes the efficient allocation or mix of deterrent capital between the corporation and the individuals who act on its behalf.

While in principle there is certainly some fine or a combination of fine and jail time sufficiently high to deter individuals from price-fixing, the available anecdotal and quantitative data suggest further increasing the fines imposed upon corporations is not likely to solve the problem. It is here that we offer an alternative solution: De-emphasize fines for publicly traded corporations and, instead, debar individuals responsible for price-fixing from further employment in a position from which they could again violate or negligently enable their subordinates to violate the antitrust laws. As we shall argue below, imposing ever-higher corporate fines is misguided; criminally sanctioning the persons directly engaged in or complicit with price-fixing and debarring negligent directors and officers whose conduct do not warrant a greater sanction would deter more price-fixing than would increasing the fines levied upon the corporation that employed them. Debarment has already been authorized as a sanction for price-fixing in some countries, including the United Kingdom, Australia, and Sweden, and has been proposed by the Competition Commission of South Africa.<sup>14</sup>

WHILE IN PRINCIPLE THERE IS CERTAINLY SOME FINE OR A COMBINATION OF FINE AND JAIL TIME SUFFICIENTLY HIGH TO DETER INDIVIDUALS FROM PRICE-FIXING, THE AVAILABLE ANECDOTAL AND QUANTITATIVE DATA SUGGEST FURTHER INCREASING THE FINES IMPOSED UPON CORPORATIONS IS NOT LIKELY TO SOLVE THE PROBLEM.

Our proposal to reform antitrust sanctions for price-fixing has two key components: the overall level of deterrence, which entails making debarment and jail time available to enforcement agencies that do not now have those options, and the mix, as opposed to the level, of criminal sanctions. Guided by the two fundamental principles set out above, we propose to shift sanctions away from the corporation and toward perpetrators and other responsible individuals.

In Part II we discuss traditional deterrence theory as applied to optimal criminal antitrust penalties. In Part III we evaluate both the U.S. and EU experience with ever-increasing corporate fines and the available empirical evidence on the deterrent value of cartel sanctions. In Part IV we turn to our claim that the con-

ventional wisdom of ever-increasing corporate fines to solve the problem of under-deterrence is misguided. We propose altering the distribution of criminal sanctions for corporations and the individuals who fix prices on their behalf, and introducing sanctions for negligent officers and directors consistent with our two fundamental principles. In Part V we discuss the experience with debarment as a sanction in other contexts, and how it might operate in the context of U.S. antitrust enforcement. Part VI concludes.

## II. Traditional Deterrence Theory and Optimal Antitrust Penalties

The economic analysis of optimal legal sanctions and criminal punishments is built upon the foundational insight that penalties should be sufficient to induce offenders to internalize the full social cost of their crimes.<sup>15</sup> In a simple setting where detection of crimes and enforcement of the law are both perfect (probability of punishment = 1) and costless, the optimal sanction will be equal to the total social harm of the crime. In the more realistic setting in which the probabilities both of detection and of punishment are less than perfect and enforcement costs are positive, optimal penalties must exceed the social cost of the crime so that the expected sanction facing each potential violator is equal to the harm his violation will cause. This economic insight of optimal penalty theory is captured in our first principle. Because the furtive nature of cartel activity reduces the probability of detection and successful prosecution, the optimal total sanction must consist of a fine equal to the perpetrator's expected gain from the violation multiplied by the inverse of the probability of detection (plus the variable enforcement costs of imposing the sanction, which we ignore henceforth). The key insight of the economic approach to optimal penalties generally,

THE KEY INSIGHT OF THE ECONOMIC APPROACH TO OPTIMAL PENALTIES GENERALLY, WHICH APPROACH APPLIES WITH FULL FORCE TO ANTITRUST SANCTIONS, IS THAT THE PENALTY MUST BE SUFFICIENT TO RENDER THE EXPECTED VALUE OF THE ILLEGAL BEHAVIOR EQUAL TO ZERO.

which approach applies with full force to antitrust sanctions, is that the penalty must be sufficient to render the expected value of the illegal behavior equal to zero.

Within this framework, therefore, the central determinants of the optimal antitrust sanction are the probabilities that price-fixing is detected and that an enforcement action is successful. In the simplest model of optimal antitrust penalties, the trebling of damages implies a detection rate of less than 33 percent. Although

it is inherently difficult to determine the actual detection rate because some cartels go undetected, the best available estimate places the rate much lower, between 13 and 17 percent.<sup>16</sup> Although that estimate is somewhat dated, as it was based upon data from cartels indicted by the U.S. Antitrust Division between 1961 and 1988, more recent estimates based upon data for the EU sug-

gest a detection rate consistent with the low end of that range.<sup>17</sup> On the other hand, there is some evidence the detection rate in the United States has increased by as much as 60 percent in recent years as a result of the corporate leniency program;<sup>18</sup> although there are no comparable data for the EU, the effect of its corporate leniency program should be similar. Therefore, assuming a prior detection rate of about 15 percent in both the EU and the United States, the current rate would be approximately 25 percent.

The relatively low probability of detection raises the probability of under-deterrence and hence the need for increased sanctions. At the same time, care must be taken lest excessive penalties deter efficient conduct and cause corporations to overinvest in compliance.<sup>19</sup> The pertinent question is whether antitrust sanctions and the threat thereof impose costs greater than necessary to deter cartel activity.<sup>20</sup> There are two important potential sources of over-deterrence in criminal antitrust sanctions. The first is the possibility that criminal penalties will be used to deter socially efficient conduct, such as non-collusive vertical restraints, which could be mistakenly attacked as price-fixing.<sup>21</sup> Although the antitrust statutes could be used that way, there is no modern support for extending criminal penalties to non-cartel activity, nor is there evidence that this potential for mischaracterization has led to a reduction in socially efficient business practices. Accordingly, we strongly favor the modern *de facto* limitation of criminal penalties to cartel activities, such as naked horizontal price-fixing, bid-rigging, and market division.<sup>22</sup>

THE PERTINENT QUESTION IS WHETHER ANTITRUST SANCTIONS AND THE THREAT THEREOF IMPOSE COSTS GREATER THAN NECESSARY TO DETER CARTEL ACTIVITY.

A second potential source of over-deterrence involves agency costs. A firm incurs agency costs to the extent its incentives diverge from those facing its employees and agents. Because agency costs create an environment that facilitates criminal conduct by the firm's agents, corporate fines are meant to provide a counter-incentive for the corporation to monitor, detect, and prevent crimes committed by its agents.<sup>23</sup> If the fine is greater than the total social cost of the crime, however, it will induce the firm to make excessive, *i.e.*, socially inefficient, investments in monitoring and prevention.<sup>24</sup> The social costs of the monitoring and compliance expenditures made in response to an increase in antitrust fines raise the firm's marginal costs and are passed on to consumers in the form of higher prices—a detriment that must be weighed against any potential increase in the probability of detection when assessing the optimal level of deterrence.<sup>25</sup>

To our knowledge, however, there is no empirical evidence that suggests consumers anywhere are currently paying the cost of an overzealous cartel enforcement regime.<sup>26</sup>

Attention to agency costs in determining the optimal antitrust penalty brings to light the key distinction between the level of penalties required for optimal

deterrence and the efficient allocation of those penalties as between the corporation and its agents. The simple model of optimal antitrust penalties ignores that distinction as well as a number of other complications. For example, reputational sanctions in the employment market can reduce the requisite level of legal sanctions.<sup>27</sup> The risk preferences of individuals and the possibility of legal error also alter the optimal sanction. Finally, other penalties—particularly the

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costs incurred by defendant corporations in private suits for damages—are also relevant to identifying optimal antitrust penalties because they, too, influence firm behavior *ex ante*.<sup>28</sup>

The standard economic approach to optimal sanctions suggests that, because fines and damage awards are transfers that do not reduce social welfare, monetary sanctions should be

used as often as possible; alternative sanctions are called for only to the extent fines provide insufficient deterrence. This approach, therefore, leads to an antitrust enforcement system with a low probability of detection, very high fines, and very few cartels. There are a number of reasons, however, to believe fines alone will not provide sufficient deterrence and alternative sanctions such as imprisonment, which is costly, and debarment, which is not costly, should also be used in antitrust enforcement.<sup>29</sup>

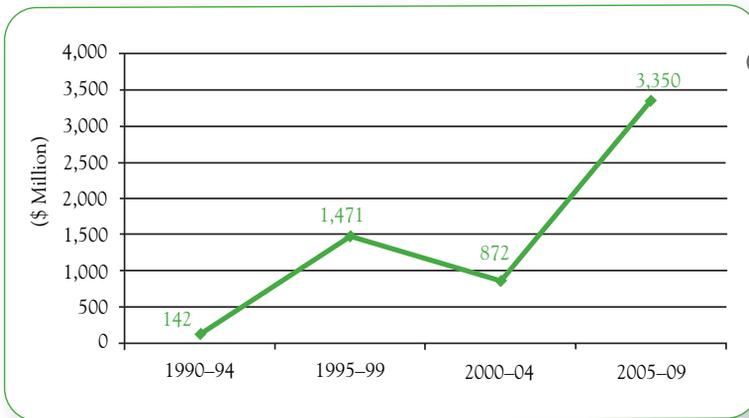
As both a theoretical and a practical matter, given the inherent uncertainty about the probability of detection and other key empirical inputs, it is likely impossible to pinpoint the optimal level of total antitrust sanctions, much less to identify precisely the mix of the potentially available sanctions that would lead to the uniquely efficient level of deterrence. Still, the economic framework is useful for thinking about the tradeoffs between various types of sanctions and their likely consequences.

### III. Are Cartels Being Underdeterred? The Experience in the United States and the EU

The bulk of scholarly opinion is consistent with the view that despite ever-increasing levels of corporate fines and longer jail sentences, cartel activity is currently under-deterred.<sup>30</sup> Whether current sanctions under-deter is ultimately an empirical question, however, and the rate of cartel formation over time is unobservable, which makes impossible any confident conclusion about whether current sanctions are over-detering, under-detering, or just right. Nonetheless, the experience in the United States and the EU with ever-increasing fines gives some reason to doubt the efficacy of further extending this approach or, indeed, of maintaining the status quo.

## A. INCREASING FINES IN THE UNITED STATES AND THE EU

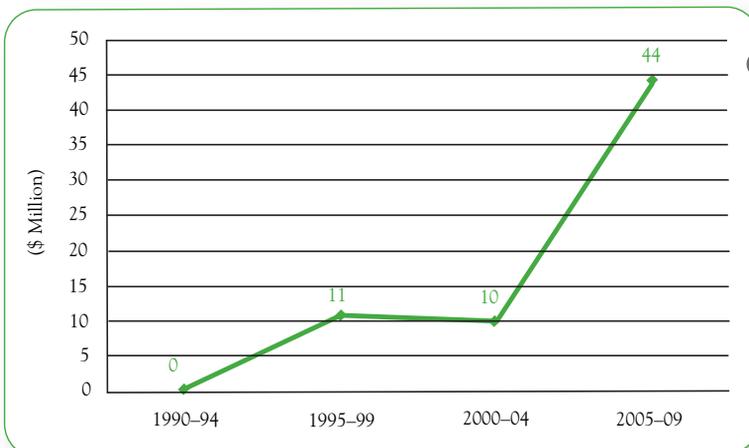
In the United States, corporate fines have increased dramatically since 1990. As Figure 1 illustrates, the enforcement agencies are clearly exercising their enhanced statutory authority, for total corporate fines collected by the Antitrust Division have increased from \$142 million during the period 1990-94 to \$3.35 billion during 2005-09. Annual average total fines collected increased from \$28 million during the period 1990-94 to \$670 million during 2005-2009, an increase of more than 2000 percent.



**Figure 1**

United States  
Antitrust Division  
Total Corporate  
Fines 1990-2009

As Figure 2 illustrates, this upward trend in corporate fines over the last 20 years, and especially the last decade, is significant. Average corporate fines have increased almost 10,000 percent from \$480,000 during the period 1990-94 to over \$44 million during 2005-2009. The trend is not the product of a small number of extremely large fines, but rather includes 73 fines of more than \$10 million during 1996-2009, 18 of which were more than \$100 million.



**Figure 2**

United States  
Antitrust Division  
Average Corporate  
Fines 1990-2009

The EU now fines price-fixers even more aggressively than does the United States.<sup>31</sup> As shown in Figure 3, total EU corporate fines in the last quinquennium were almost EUR 10 billion, or 27 times what they had been in 1990–94, reflecting an even greater rate of growth than that of total U.S. corporate fines. The United States collected more in fines only during 1999, which may reflect simply that the United States fined Hoffman-La Roche for its participation in the vitamin cartel in 1999 whereas Europe did so in 2001.

**Figure 3**

EU Total Corporate Fines 1990–2009

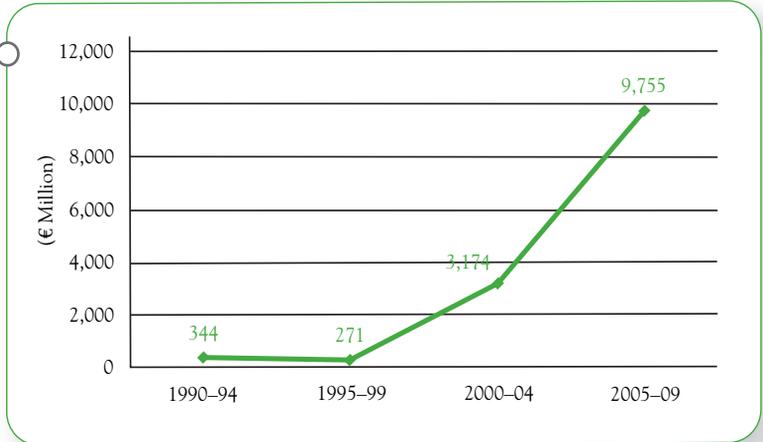
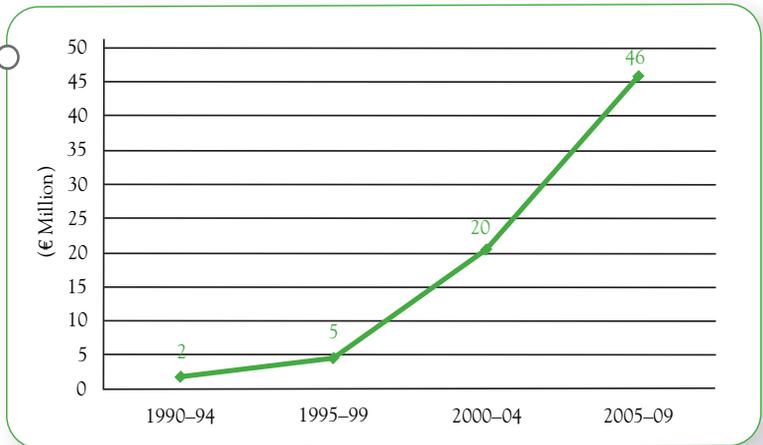


Figure 4 shows that average corporate fines in the EU increased from less than EUR 2 million during the period 1990-94 to more than EUR 45 million during 2005-09. Over the same interval, total fines levied upon corporations each year went from EUR 19 million to EUR 450 million, representing an increase of almost 24 times.

**Figure 4**

EU Average Corporate Fines 1990–2009

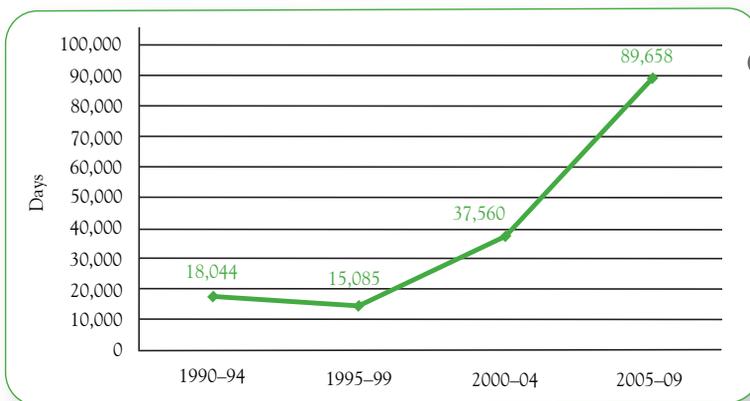


A critical question for our purposes is whether the greatly increased level of fines since 1990 has resulted in increased deterrence. Professor Connor finds that while “[i]nternational cartel discovery rates have been increasing since 1990, from four to six per year in the early 1990s to about 35 per year in 2003-2005,” detected instances of price-fixing remained relatively frequent from 1990 to 2005, extracting from consumers (in constant 2005 dollars) aggregate overcharges exceeding \$200 billion, with an average overcharge of \$2.1 billion per cartel.<sup>32</sup>

The significance of the increase in aggregate cartel fines is ambiguous. Perhaps enforcement agencies are becoming more successful in discovering and prosecuting price-fixers; or perhaps companies are even more frequently fixing prices despite the increase in the average fine. If the best way to deter price-fixing is to increase fines, then we should expect the number of cartel cases to decrease as fines increase. At this point, however, we do not have any evidence that a still-higher corporate fine would deter price-fixing more effectively. It may simply be that corporate fines are misdirected, so that increasing the severity of sanctions along this margin is at best irrelevant and might counter-productively impose costs upon consumers in the form of higher prices as firms pass on increased monitoring and compliance expenditures.

## B. INCREASING JAIL SENTENCES IN THE UNITED STATES

Corporate fines are not the only sanction imposed in the United States. As Figure 5 demonstrates, since 1990 the U.S. Antitrust Division has been sending more individuals to jail for longer periods of time, but the number of individuals sentenced has increased at a lesser rate than have fines.<sup>33</sup>



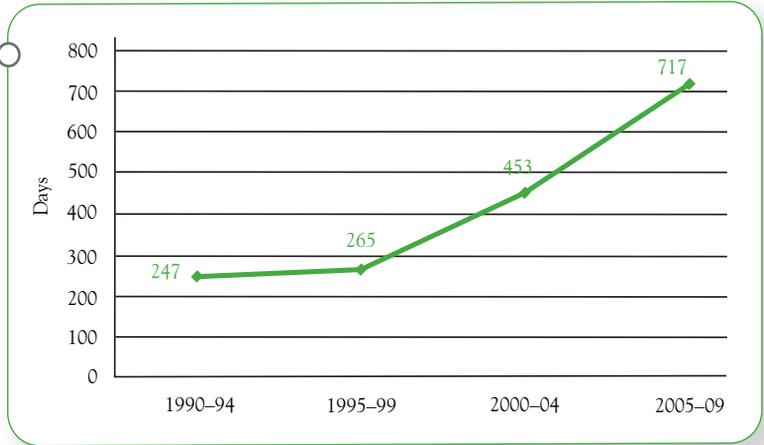
**Figure 5**

US Antitrust  
Division Total  
Incarceration  
Days 1990–2009

Perhaps more important, as Figure 6 shows, the average length of the sentence meted out also increased, especially after 2004, when the maximum lawful sentence was increased from three to ten years.<sup>34</sup>

**Figure 6**

US Antitrust  
Division Average  
Jail Sentence  
1990–2009



Comparable data are not available for the EU because there is no provision for imposing any sanction—fine or jail time—upon an individual. In some instances, however, individual sanctions may be sought by the competition agency of a member country.

### C. THE PROLIFERATION OF CRIMINAL ANTITRUST SANCTIONS AROUND THE WORLD

Over the last decade a number of countries have increased the sanctions for cartel offenses. Penalties include not only corporate and individual fines but also jail sentences and debarment.

Fines imposed by national competition agencies can be quite significant. The U.K. Office of Fair Trading assessed an average corporate fine of £4.7 million during the period 2001–06.<sup>35</sup> During the same period, the German Bundeskartellamt collected a total of EUR 969.2 million in corporate and individual fines.<sup>36</sup> The French Competition Council imposed fines of EUR 2.0 billion from 2001 to 2008 and EUR 631.3 million in 2008 alone.<sup>37</sup>

National competition laws have also increasingly authorized incarceration for cartel offenses. For example, public prosecutors in Germany obtained a 34-month sentence for bid rigging in the *Pipes Cartel* case.<sup>38</sup> The Appendix summarizes the availability of antitrust sanctions in 39 countries. In 18 of those countries, competition laws authorize prison time for price-fixing. Criminal sanctions, however, are rarely imposed outside the United States and now Canada, where fines have been the usual penalty but imprisonment is now more frequently being sought. The overwhelming majority of these penalty regimes provide for both corporate and individual fines, while a few provide for debarment.

## D. ARE CONVENTIONAL PENALTIES DETERRING CARTELS?

There is no indication that the dramatic increase in both corporate fines and the average length of jail sentences has resulted in a significant decline in cartel activity. Corporate fines are unlikely to efficiently deter conduct by an individual employee because he will internalize almost none of the fine imposed against his employer. The data are consistent with this understanding. While it is impossible to quantify what, if any, effect the increase in criminal antitrust sanctions has had upon the level of cartel activity, the available data on the duration of price-fixing conspiracies, on stock price movements in response to cartel-related indictments, and on recidivism among companies all suggest current penalties under-deter.

The best available estimate of average cartel duration, from a study of 40 recent cases brought either by the U.S. Antitrust Division or the European Commission, is six years.<sup>39</sup> Although the sample of cartels leading to indictments is biased, there is no *a priori* reason to believe the sample selection biases upward the estimate of average cartel duration.<sup>40</sup> That these cartels persisted undetected for so long suggests price-fixing may be more profitable than was previously thought,<sup>41</sup> which in turn suggests the need for greater sanctions if cartels are to be deterred.

Stock price movements following indictments for price-fixing also suggest inadequate deterrence. A well-documented empirical regularity, both across jurisdictions and over time, is that share values in indicted firms initially fall significantly. The most recent studies evaluating EU antitrust enforcement find a large loss of value upon the initiation of an enforcement action, only a small fraction of which can be attributed to fines and legal costs.<sup>42</sup> Similar results obtain in the United States. For example, the total loss of stock market capitalization for a sample of firms indicted from 1962 to 1980 is approximately \$2.18 billion (in 1982 dollars), less than 13 percent of which can be attributed to fines, private treble damages, and other legal costs.<sup>43</sup> A similar loss of value following indictments of publicly traded firms was found in a study spanning 1981 to 2000.<sup>44</sup> One reasonable interpretation of these findings is that the residual loss in value is associated with the expectation that the price of the firm's products will drop to the competitive level, with a concomitant loss of monopoly profits.<sup>45</sup> The share price data also suggests a strong incentive for recidivism; even after accounting for fines and legal costs, price-fixing remains profitable.

Indeed, subsequent studies demonstrate that the stock prices of the overwhelming majority of indicted firms return to pre-indictment levels within one year.<sup>46</sup> Again, this result holds for indictments between 1962 and 1980 as well as between 1981 and 2000. Given the substantially greater corporate fines imposed

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in the latter time period, the consistency of the stock price recovery across both periods suggests increased fines did not significantly increase cartel deterrence.<sup>47</sup> Regardless of the interpretation assigned to the initial post-indictment decrease in the stock price,<sup>48</sup> the systematic recovery of pre-indictment stock prices within a year suggests current sanctions have no more than a transitory impact upon market outcomes and little, if any, deterrent value.

Recent recidivism data in Figure 7 are also consistent with the view that sanctions are not adequately deterring cartel activity.

**Figure 7**

The World's  
Leading  
Recidivists

Company	Number of Judgments Worldwide 1990–2009
BASF	26
Total S.A. (TotalFina, Elf, Atofina)	18
F. Hoffman-La Roche	17
Azko Nobel	14
Aventis	14
ENI	14
Shell	14
Degussa (Evonik)	13
Bayer	11
Mitsubishi	10
Mitsui	10

Source: Connor & Helmers, Statistics on Private Int'l Cartels, 1990-2005 (Working Paper, 2008)

Professor Connor has identified seven companies that averaged about one or more judgments annually over the 15-year period 1990-2005. In addition to these exceptionally persistent recidivists, he found 86 companies with three or more judgments worldwide in this period. For the same 15-year period the filings of the U.S. Antitrust Division alone include three cases against Bayer and two each against Hoffman-La Roche, Degussa (now Evonik) Chemical, and Archer Daniels Midland, which again tends to suggest there is a problem with recidivism.<sup>49</sup>

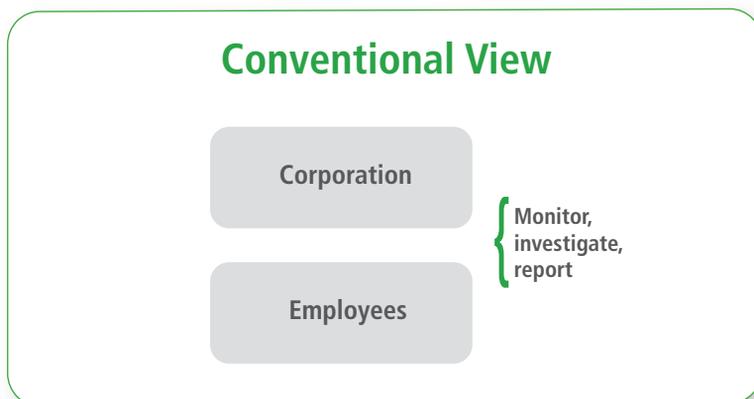
Evaluating these data, Connor concludes that although “[m]onetary sanctions imposed upon international cartelists since 1989 have been the highest in antitrust history ... extensive recidivism implies that present cartel sanctions are inadequate to deter cartel formation.”<sup>50</sup> He calculates that “even under the most optimistic assumptions about discovery, lenience, and prosecution rates, the

average conspirator can reasonably expect to make a profit on the typical global price-fixing scheme .... To ensure optimal deterrence of global cartels, total financial sanctions should be four times the expected global cartel profits (the overcharge).”<sup>51</sup> This conclusion is remarkably consistent with our earlier estimate that perhaps twenty-five percent of cartels are now detected.

If one accepts that cartels are being under-deterred, then Connor’s prescription reflects the prevailing view of how to solve the problem: Increase corporate fines, *simpliciter*. In our view, however, the prevailing view is in need of re-examination and is almost certainly wrong. Instead of expecting ever-larger corporate fines to reduce cartel behavior, we believe an alternative approach that shifts deterrence efforts away from the corporation and toward the individuals responsible for the violation will provide greater deterrence than does the current approach. We expect the increase in deterrence to be particularly large where individuals are not held criminally or civilly liable for their role in price-fixing. As for the United Kingdom, we think it is on a better trajectory than either the United States or the EU for reasons that appear below.

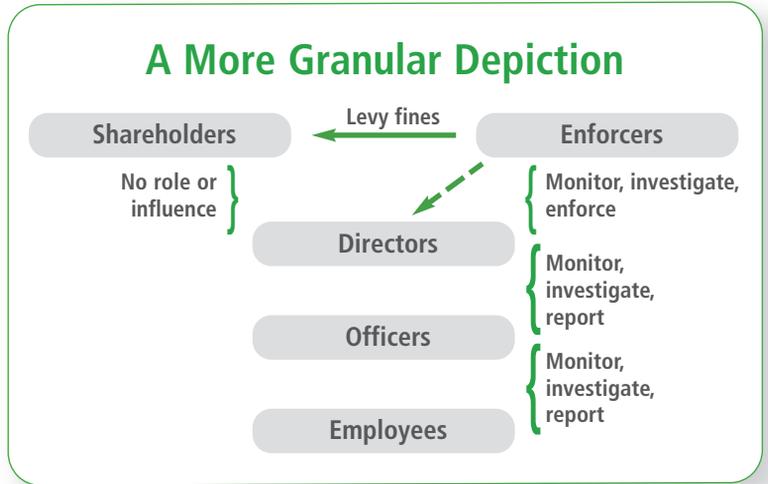
## IV. Our Proposal

The model of the firm reflected in the approach currently taken by the antitrust enforcement agencies implicitly views “the corporation” as an entity looming above and apart from its employees, which view envisions the corporation as monitoring, investigating, and reporting their misdeeds. Therefore, it is no surprise that the standard economic approach to penalties, as applied by the enforcement agencies, yields a policy that focuses upon the corporation.



Whatever the merits of the conventional view as applied to a closely held corporation, a more granular model of the publicly traded corporation brings into clearer focus the incentives and abilities of the individuals who operate within

and on behalf of the firm. In this model, the directors oversee the officers, who manage the employees. The shareholders are passive investors; they have no influence over the day-to-day operations of the firm. Public authorities (and, in the United States, plaintiffs' class action lawyers) monitor, investigate, and enforce the antitrust laws but, because they are firm outsiders, they have less information and exert less direct influence over employee behavior than do the senior managers and the directors.



The granular model makes it easier to see why a shift from further increasing penalties for corporations in favor of increasing the sanctions imposed upon the individual employees (at whatever level) who engage in price-fixing is likely to be the more cost-effective way to increase deterrence. Shareholders cannot prevent price-fixing by employees of the corporation. Their options are to hold or to sell their shares and, insofar as possible price-fixing is relevant to their decision, they will choose between holding and selling based upon whether price-fixing is likely to increase the corporation's earnings and hence the market value of their shares.

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Corporate officers and directors also reap gains from the corporation's participation in a cartel. They may capture some of the gains in the form of increased compensation and perquisites, and the increased value of shares in the corporation enhances their reputations and career opportunities.

In sum, as matters now stand, neither shareholders nor directors and officers have an incentive to prevent price-fixing as long as it remains profitable for the corporation. And, as we have seen, even at their present enhanced level, corpo-

rate fines seem not to take the profit out of price-fixing. The level of corporate fines could, of course, be increased yet again but that makes sense only if it is likely to be the most cost-effective way of achieving an additional quantum of deterrence.

Although imposing a criminal penalty upon a director or an officer would provide him with an incentive to prevent price-fixing, it makes more sense to target the actual employee who fixes prices for two reasons. First, that employee is directly responsible for the price-fixing; sanctioning a director or officer deters price-fixing only if he is able to stop the employee. Second, because an employee has less to gain from price-fixing than does a director or officer, a smaller sanction is required to deter the employee. It is true that price-fixing still occurs in jurisdictions where it is now a criminal offense, but that more likely suggests current penalties are insufficiently severe, not that imposing criminal sanctions upon individuals will have little additional deterrent value.

We assume the probability of detection is relatively fixed for the foreseeable future: Competition agencies have no shortage of resources for uncovering cartels and they have fine-tuned their leniency programs through experience. Still, the evidence suggests that cartel formation is insufficiently deterred. The question how best to increase deterrence therefore comes down to this: Is increasing corporate fines or increasing individual sanctions more likely to increase deterrence by a given amount at a lower cost?

We think it clear the time has come to increase individual sanctions rather than corporate fines. In reality, it is shareholders, not the abstraction called “the corporation,” who bear the economic burden—such as it is—of corporate sanctions. It was their agents, however, in management and on the board of directors who violated the law or who may have been in a position to prevent the violation; they should be the focus of the law’s efforts to deter price-fixing.<sup>52</sup>

Our more granular depiction of the firm has implications also for the role of compliance programs in evaluating optimal criminal antitrust penalties. If a company has made a reasonable effort to comply with the antitrust law, and an employee nevertheless engages in price-fixing, then it makes no sense to fine the corporation, or to sanction the directors or officers.<sup>53</sup> On the other hand, if the directors or officers were negligent in performing their duty to supervise the employee who actually fixed prices, then they should be held accountable along with the perpetrator. Boards of directors of publicly held companies routinely task a committee of board members—most often the audit committee but sometimes a special committee—with responsibility for corporate legal compliance. Such a committee should and ordinarily does insist that management implement an antitrust compliance program. If the board of a corporation that participates in a cartel has failed to do that, or has neglected to monitor management’s continued adherence to the program, then it is only sensible to inquire whether the

directors were negligent to the point that they, too, should be sanctioned in some way proportionate to their role in the corporation's violation.<sup>54</sup>

In theory at least, the means by which shareholders constrain management is through the oversight provided by the directors, who are fiduciaries and are supposed to act as the shareholders' representatives. That is why a state supreme court recently heard a shareholder's derivative suit against the board of directors of Micron Technology on the theory that the board had failed to prevent known price-fixing by the company's managers.<sup>55</sup> It is notoriously difficult for a derivative suit to succeed, however, and shareholders are rarely able to exert control over their board through the annual election of directors. In short, shareholders simply cannot prevent or deter a corporate employee from price-fixing or a board of directors from negligently failing to notice—but the law, properly targeted, could do so.

With our more granular model of the firm as our foundation, we turn to our proposal for the design of optimal antitrust penalties. Three groups are implicated: the perpetrator, the directors and officers responsible for antitrust compliance, and the corporation (as a stand-in for the shareholders).

Clearly, the actual perpetrator should face the traditional criminal sanctions—jail and fines, to which we would add debarment. There is ample evidence that jail sentences significantly deter individuals in general and business executives in particular.<sup>56</sup> The deterrent value of a prison sentence is supplemented by the prospect of a decrease in income and in employment opportunities incurred by an individual who has been convicted of price-fixing.<sup>57</sup> Adding debarment to the mix of potential penalties imposes a direct opportunity cost upon the perpetrator and increases both the likelihood and the magnitude of the reputational sanction. It also reduces the length of incarceration required, as well as the amount of the personal fine necessary, to achieve any given level of deterrence. Both debarment and incarceration protect the public from recidivism by a particular individual. Because incarceration involves significant social costs,<sup>58</sup> however, debarment as a complement to incarceration is more likely to achieve the desired level of individual deterrence at a lower social cost than would additional jail time.

To the extent they are culpable, directors and officers responsible for overseeing operations and implementing antitrust compliance programs should also be held accountable for their performance.<sup>59</sup> Of course, those who discharge their responsibility appropriately should not be sanctioned at all. Those who perform these tasks negligently, however, should be fined and debarred for a period of years.<sup>60</sup> Similarly, those who are complicit in a price-fixing scheme without rising to the level of a perpetrator—such as an aider or abettor—should also be both debarred and fined.<sup>61</sup>

The essential tenet of our proposal is that shifting incremental cartel sanctions away from corporations and toward the individuals who engage in price-fixing or are responsible for monitoring antitrust compliance will enhance deterrence. The addition of debarment incident to that shift complements the usual antitrust sanctions for individual violators, *i.e.*, a sentence including fines and jail as well as the reputational penalty incurred in the job market. Debarment, moreover, has some unique advantages as an antitrust sanction.

THE ESSENTIAL TENET OF OUR PROPOSAL IS THAT SHIFTING INCREMENTAL CARTEL SANCTIONS AWAY FROM CORPORATIONS AND TOWARD THE INDIVIDUALS WHO ENGAGE IN PRICE-FIXING OR ARE RESPONSIBLE FOR MONITORING ANTITRUST COMPLIANCE WILL ENHANCE DETERRENCE.

The first advantage is that debarment, like jail, imposes a direct and substantial opportunity cost upon individuals who engage in price-fixing. Indeed, an Office of Fair Trading report presents survey evidence that in the United Kingdom, after criminal penalties, disqualification from serving as a corporate officer or director is the sanction most likely to motivate compliance.<sup>62</sup> Debarment also achieves its deterrent value at a lower social cost because an executive will be equally deterred by a long prison sentence or by a shorter prison sentence (which is less costly to society than is a longer one) and debarment (which is effectively costless to society).<sup>63</sup>

The second and indirect advantage is that debarment enhances the likelihood and magnitude of the reputational sanction imposed by the job market. Increasing reputational penalties would not only enhance deterrence but would also reduce the required level of fines and jail time necessary to achieve any given level of deterrence.<sup>64</sup> To the extent an individual is wealth constrained and therefore unable to pay a large fine, debarment would further improve the efficiency of deterrence.

## V. Debarment in Other Settings

Although the United States has relied upon a mix of corporate fines and individual penalties, including fines and incarceration, neither the United States nor the EU has used debarment to deter price-fixing; indeed, as mentioned before, EU competition law does not provide for any sanction against any individual. Several countries, however, either now do or in the near future may debar those persons who engage in antitrust violations. For example, the Competition Commission of South Africa is seeking the authority to apply for a court order barring a person convicted of price-fixing from serving as a corporate director. Similarly, under the 2009 Amendments to the Australian Trade Practices Act, an individual who violates either the competition laws (the Trade Practices Act) or the securities laws (the Corporations Act) may be disqualified from managing

a corporation. In Sweden, a law effective since November 1, 2008 authorizes a court to issue a disqualification order (or “trading prohibition”) at the request of the Competition Authority. This order bars an individual who has participated in a cartel from managing any business for a specified period.<sup>65</sup>

The United Kingdom appears to be the only jurisdiction that has any experience with debarment as a remedy for an antitrust violation,<sup>66</sup> and that experience is thus far limited to one case.<sup>67</sup> Under the Company Directors Disqualification Act of 1986, a regulator may apply for a court order disqualifying a company director from again acting as a director or participating in the management of any U.K. company for up to 15 years. The OFT acquired this authority in 2002 when the United Kingdom made participation in a cartel a criminal offense.

The Disqualification Act applies to a person if “a company of which he is a director commits a breach of competition law,” which means participates in a cartel and “his conduct as a director makes him unfit to be concerned in the management of a company,” which means his conduct “contributed to the breach of competition law,” “he had reasonable grounds to suspect that the conduct of the undertaking constituted the breach and he took no steps to prevent it,” or “he did not know but ought to have known that the conduct of the undertaking constituted the breach.”<sup>68</sup>

A disqualification order provides the named individual “shall not be a director of a company ... or in any way, whether directly or indirectly, be concerned or take part in the promotion, formation, or management of a company.”<sup>69</sup> The Act has been applied for almost 25 years in contexts other than antitrust, with dozens of disqualification orders issued in 2009 alone,<sup>70</sup> so there should by now be a substantial body of precedent informing terms that are facially unclear, such as what it means indirectly to “take part in the ... management of a company.”<sup>71</sup> Thus far, the single example involving debarment of an antitrust violator is the *Marine Hose* case, which is also the only criminal competition case to go to judgment in the United Kingdom. The court sentenced three individuals to jail terms of two to three years for their participation in the cartel and, upon the petition of the OFT, entered disqualification orders of from five to seven years against each of the three defendants.

One need not look only to the United Kingdom for significant experience with debarment as a legal sanction. At least since the early 1980s, the U.S. Securities and Exchange Commission has routinely negotiated consent decrees barring a person accused of violating the securities laws from serving as an officer or director of a public company for a stated period of years.<sup>72</sup> Similarly, the Federal Trade Commission has regularly negotiated consent decrees amounting to judicial debarment orders against individuals and businesses accused of violating the consumer protection laws the agency is charged with enforcing.<sup>73</sup>

The U.S. Department of Justice should consider taking a similar approach to sentencing individuals convicted of a criminal violation of § 1 of the Sherman Act. We are aware of no reason for which the Department needs to wait for statutory authority to get started, as did the SEC, by negotiating consent orders providing for debarment.<sup>74</sup> Prosecutors might, for example, if the conditions for leniency are met, agree to allow individual defendants to reduce or avoid jail time, in return for debarring them from working as a manager or director of any publicly traded corporation or for any company in a particular industry if it is either located in or sells into the United States.<sup>75</sup>

Negotiated orders of debarment would allow the Antitrust Division to accrue much of the benefit of a prison sentence—publicizing the offense and keeping the offender from recidivating—without undertaking the risk and cost of a criminal trial. The period of debarment should be calibrated to have the same average deterrent effect as jail.<sup>76</sup> Further, as we have pointed out, debarment would bolster currently weak reputational penalties, thereby reducing the need for individual fines, which are less likely to deter efficiently because of individuals' wealth constraints.

FURTHER, AS WE HAVE POINTED OUT, DEBARMENT WOULD BOLSTER CURRENTLY WEAK REPUTATIONAL PENALTIES, THEREBY REDUCING THE NEED FOR INDIVIDUAL FINES, WHICH ARE LESS LIKELY TO DETER EFFICIENTLY BECAUSE OF INDIVIDUALS' WEALTH CONSTRAINTS.

## VI. Conclusions

The press releases of competition agencies worldwide notwithstanding, we think it is questionable, indeed doubtful that a \$100 million fine—or even a fine of over EUR 1 billion<sup>77</sup>—imposed upon a corporation because one of its executives fixed prices serves the primary goal of an antitrust sanction: to deter anticompetitive conduct that injures consumers. When fines are levied against a publicly traded corporation, the persons burdened are consumers and possibly shareholders, two groups almost certainly unable to affect the conduct of the corporation.

It was a corporate executive who conspired to fix prices or allocate the market. It was his superiors in management or on the board of directors who failed to ensure the company operated lawfully. These are the individuals we want to deter. But they will not be deterred as long as consumers and shareholders bear the brunt of antitrust penalties while the directors and officers of the company have too little incentive to prevent violations. ▼

## VII. Appendix: Penalty Regimes for Companies and Individuals

Jurisdiction	Maximum Fines for Companies	Maximum Fines for Individuals	Maximum Prison Term	Debarment	Private Action
<b>European Union</b>					
European Commission <sup>a,b,d,j</sup>	10% of total worldwide turnover; baseline fines of 30% of relevant sales for hard core offenses with no maximum	Not Applicable	Not Applicable	Not Applicable	Not Applicable
<b>Europe: European Union Members</b>					
Austria <sup>e,gg</sup>	10% of turnover of the preceding financial year	Not Applicable	Not Applicable	Not Applicable	Private actions available; third parties may submit claims; follow-on actions available in theory; no class actions available
Belgium <sup>c,hh</sup>	10% of worldwide turnover for preceding financial year	Not Applicable	Not Applicable	Not Applicable	Private actions available; class actions not yet available <sup>hh</sup>
Bulgaria <sup>c,ii</sup>	10% of total turnover for preceding financial; max suggested to be BGN 300,000 <sup>c</sup>	BGN 50,000	Not Applicable	Not Applicable	Private actions available; follow-on actions available; class actions not available
Czech Republic <sup>c,h,i</sup>	CSK 10 million or 10% of total worldwide turnover recorded over last calendar year	Up to CZK 10 mil. <sup>h</sup>	5 years	Prohibition on carrying on business activities <sup>c</sup>	Private actions available; class actions not available
Cyprus <sup>c,ii</sup>	10% of combined annual revenue for preceding year or year within which infringement occurred plus €85K/day if infringement continues	Not Applicable	Not Applicable	Not Applicable	Private actions available; follow-on actions available; class actions not available, though representative actions are <sup>l</sup>
Denmark <sup>a,c,d,i</sup>	Court may impose fine; no maximum though serious cases often warrant a fine >DKK 15 mil.	No maximum	Not Applicable	Not Applicable	Private actions available; follow-on actions available but rare; <sup>e,c</sup> class actions available

*Continued on next page*

## VII. Appendix: continued

Jurisdiction	Maximum Fines for Companies	Maximum Fines for Individuals	Maximum Prison Term	Debarment	Private Action
Estonia <sup>a, kk</sup>	250 million kroons (€16 million)	500 daily rates/units (calculated by average daily income of offender)	3 years	Not Applicable	Private actions available and follow-on actions available, but not typical; class actions not available
Finland <sup>a, ll</sup>	10% of turnover of the preceding year	Not Applicable	Not Applicable	Not Applicable	Private actions available; follow-on actions available; class actions not available
France <sup>a, c, k, l</sup>	10% of turnover preceding year; €3 mil. if the offender is not a company (i.e., a sole trader)	€75,000	4 years	Not Applicable	Private actions available; follow-on actions available; class actions not available unless brought by consumer ombudsman <sup>ll</sup>
Germany <sup>b, c, m</sup>	(1) 10% of total worldwide turnover, or (2) 5% of total worldwide turnover if infringement is the result of negligence	€1 million (bid-rigging cases only)	5 years	Not Applicable	Private actions available; third parties may submit claims; indirect purchaser standing available
Greece <sup>c, mm</sup>	15% of worldwide turnover preceding financial year	€150,000 or €300,000 (recidivist)	5 years	Not Applicable	Private actions available; follow-on actions available but uncommon; class actions not available
Hungary <sup>a, c, n</sup>	10% of the turnover of preceding financial year <sup>a, c</sup>	Not Applicable	5 years	5 years Applicable Automatic two year debarment for executive officers ruled unconstitutional	Private actions available; follow-on actions
Ireland <sup>a, c, d, o</sup>	Greater of: (1) €4 mil. or (2) 10% of turnover	Greater of: (1) €4 mil. or (2) 10% of turnover	2 years	Not Applicable	Private actions available; follow-on actions available; class actions not available
Italy <sup>a, c, q</sup>	Fine amount depends on gravity and duration of violation, but no more than 10% of the turnover for each entity during prior financial year from the products forming the subject matter of agreement	Not Applicable	Not Applicable	Not Applicable	Private actions available; follow-on actions available; class action available to consumers only <sup>q</sup> (law amended in 2009 take effect in 2010)

Jurisdiction	Maximum Fines for Companies	Maximum Fines for Individuals	Maximum Prison Term	Debarment	Private Action
Latvia <sup>c, mm</sup>	10% of the turnover of preceding financial year; not less than €350 for vertical agreements/ €750 horizontal agreements	Not Applicable  Fine not exceeding 100x minimum daily wage for failure to comply with decisions	Not Applicable  2 years for failure to comply with lawful demands	Not Applicable  5 years deprivation of right to engage in business activity for failure to comply with lawful demands with 2 year minimum	Private actions available; follow-on actions available when failure to conform with decision; class actions available but rare
Lithuania <sup>c, oo</sup>	10% of gross annual income of preceding financial year	Not Applicable	Not Applicable	Not Applicable	Private actions available but not typical; follow-on actions available but not typical; class actions not available
Luxembourg <sup>c, pp</sup>	10% of highest worldwide turnover realized during preceding financial year during which conduct occurred	Not Applicable	Not Applicable	Not Applicable	Private actions available; follow-on actions available but rare; class actions not available
Malta <sup>c</sup>	10% of worldwide turnover	10% of worldwide turnover of company	Not Applicable	Not Applicable	Private action available; follow-on actions available; class actions available
Netherlands <sup>a, b, c, d, u</sup>	May not exceed (1) €450,000 or (2) 10% of total worldwide turnover	Administrative: €450,000	Not Applicable	Not Applicable	Private actions available in principle; settlements brought by a group of claimant can be made binding by the courts; indirect purchaser standing available
Poland <sup>a, c, d, w</sup>	Up to 10% of the revenue earned in the preceding accounting year; or, where there is no revenue, fine up to 200 times the average salary	Not Applicable	Not Applicable	Not Applicable	Private actions available; follow-on actions not available; class actions not available
Portugal <sup>c, q1</sup>	10% of turnover in Portugal during previous year	10% of turnover in Portugal during previous year, subject to special reduction	Not Applicable	Not Applicable	Private actions available; no significant experience with follow-up actions or class actions

*Continued on next page*

## VII. Appendix: continued

Jurisdiction	Maximum Fines for Companies	Maximum Fines for Individuals	Maximum Prison Term	Debarment	Private Action
Romania <sup>a, tt</sup>	10% of the aggregate turnover of the undertaking involved for the preceding financial year	Fines available	4 years	Not Applicable	Private actions available; follow-on actions rare; class actions not available
Slovakia <sup>c, ss</sup>	(1) 10% of the turnover of the undertaking generated in the preceding financial year or (2) €330,000	(1) 10% of the turnover of the undertaking generated in the preceding financial year or (2) €330,000	Not Applicable	Not Applicable	Private actions and follow-on actions available, but rare; class actions not available, but court may join proceedings
Slovenia <sup>c, tt</sup>	10% of the turnover realized the preceding financial year	€30,000	5 years	5 year prohibition from performing occupation	Private actions available; follow-on actions available; class actions not available, but claims may be consolidated
Spain <sup>a, c, v</sup>	Up to 10% of total turnover for the fiscal year preceding the Tribunal's decision	€60,000	Not Applicable	Not Applicable	Private actions available; follow-on actions available; class actions in principle not available
Sweden <sup>a, c, d, aa</sup>	If infringement is intentional or negligent, fine up to 10% of annual turnover	Not Applicable	Not Applicable	Disqualification Orders	Private actions available; follow-on actions available; class actions available
United Kingdom <sup>a, c, d, dd, uu</sup>	10% of total worldwide turnover	Magistrate Court: £5,000 Crown Court: Unlimited	5 years	Competition Disqualification Orders	Private actions available before the Competition Appeals Tribunal (follow-on only) and civil courts; representative actions available before specified bodies; indirect purchaser standing available.
<b>Non-European Union Members</b>					
Norway <sup>a, c, d, v</sup>	Fines available up to 10% of worldwide turnover; penalty payments can be imposed while violation persists	Not Applicable	6 years	Not Applicable	Not Applicable

Jurisdiction	Maximum Fines for Companies	Maximum Fines for Individuals	Maximum Prison Term	Debarment	Private Action
Russia <sup>c, d, x</sup>	15% of company's turnover in market where violation occurred; fine must be at least RUR 100,00 (~\$3,400)	1 million rubles or a fine amounting to the convicted person's salary for up to five years	7 years	Prohibition	Not Applicable
Switzerland <sup>d, c, d, bb</sup>	Up to 10% of the three previous years' turnover realized in Switzerland	CHF 100,000	Not Applicable	Not Applicable	Private action available, but not typical; class actions not available
Turkey <sup>a, c, cc</sup>	Fines at least TRL 200 million and up to 10% of the gross income in the prior fiscal year	5% of the fine imposed on the legal entity	Not Applicable	Not Applicable	Private actions available; follow-on actions available; treble damages
<b>Asia</b>					
Japan <sup>a, d, r</sup>	Administrative surcharge up to 10% of cumulative sales forming the subject of the agreement for the duration of the agreement, up to 3 years; fine up to ¥ 500 million	¥ 5 million	5 years	Not Applicable	Private actions available; follow-on actions available
Korea <sup>a, d, s</sup>	Surcharge up to 10% of the turnover of the relevant product during the relevant period; where there is no revenue, up to KRW 1 billion	If individual engages in cartel activity after agency referral to prosecutor's office, fine up to KRW 200 million	3 years	Not Applicable	Private actions available, no discovery
<b>Oceania</b>					
Australia <sup>a, b, d</sup>	Greater of (1) AUS \$10 million (~ €5 million); (2) if court can determine value of cartel gains attributable to the act or omission then three times the value of that benefit; or (3) if court cannot determine the value of the benefit then 10% of total worldwide turnover during year prior to infringement	Administrative: AUS \$500,000 (€251,710) Criminal: AUS \$220,000	10 years	Director Disqualification Orders	Class actions and representative actions by the ACCC; private parties may opt-out to pursue own claims;

*Continued on next page*

## VII. Appendix: continued

Jurisdiction	Maximum Fines for Companies	Maximum Fines for Individuals	Maximum Prison Term	Debarment	Private Action
New Zealand <sup>a, d, vv</sup>	The greater of NZ\$ 10,000,000, 10% of corporate turnover, or if court can determine value of cartel gains attributable to the act or omission then three times the value of that benefit	NZ\$ 500,000; indemnification is prohibited	Not Applicable	Not Applicable	Private actions available; representative actions available
<b>Middle East</b>					
Israel <sup>e, d</sup>	ISL 4 million (~ €700,000) plus ISL 26,000 (~ €4,800) for each day offense persists	ISL 2 million (~ €350,000) plus ISL 13,000 (~ €2,400) for each day offense persists	3 years; 5 years if substantial damage	Not Applicable	Private actions available; class actions available
<b>Africa</b>					
South Africa <sup>d, z</sup>	No more than 10% of turnover in South Africa and the firm's exports from South Africa in the preceding year	R 500,000 (proposed)	10 years (proposed)	Proposed Legislation	Not Applicable
<b>South America</b>					
Chile <sup>e, d</sup>	Up to 30,000 annual tax units (~ US \$27 million)	Up to 30,000 annual tax units (~ US \$27 million)	Not Applicable	Not Applicable	Private follow-on actions available; class actions possibly available
<b>North America</b>					
Canada <sup>a, d, e</sup>	Up to CAD 25 million per count (as of March 2010)	CAD 25 million per count	14 years	Not Applicable	Private actions available; class actions available
Mexico <sup>a, d, ff, t</sup>	1.5 million times the minimum general wage prevailing in Mexico City (~ US \$6.5 million) for serious offenses, up to 10% of annual sales or 10% of assets, whichever is greater	7,500 times the minimum general wage prevailing in Mexico city (~ US \$ 30,000)	Not Applicable	Not Applicable	Private follow-on action available

Jurisdiction	Maximum Fines for Companies	Maximum Fines for Individuals	Maximum Prison Term	Debarment	Private Action
United States <sup>a,b,d,ee</sup>	(1) \$100 million (~ €76 million), or (2) if authorized by alternative sentencing statute, fines up to twice the gain derived from the criminal conduct or twice the loss suffered by the victims	Criminal: (1) \$1 million (€779,277), or (2) twice the gain/harm	10 years	Not Applicable	Class actions available; private parties may opt-out to pursue own claims; Cartelist faces joint and several liability; treble damages in the event of judgment; indirect purchaser standing not available

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- 44 John S. Thompson & David L. Kaserman, *After the Fall: Stock Price Movements and the Deterrent Effect of Antitrust Enforcement*, 19 REV. INDUS. ORG. 329 (2001).
- 45 One alternative interpretation is that the announcement of an indictment creates market expectations of lower operational efficiency, perhaps because of the loss of key management personnel, or the risk of future illegal activity that could lead to further prosecution and fines.
- 46 See Thompson & Kaserman, *supra* note 44 (finding the share price of eighty-five percent of the firms in the sample involving indictments between 1962 and 1980 had regained one hundred percent of their pre-indictment levels within one year); Alla Golub, Joshua Detre & John M. Connor, *The Profitability of Price-Fixing: Have Stronger Antitrust Sanctions Deterred?* 11 (Working Paper, Apr. 2005), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1188515](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1188515) (finding the share prices of eighty-seven percent of the firms in a sample involving indictments between 1981 and 2001 had regained one hundred percent of their pre-indictment levels within one year).
- 47 It is possible that the significant increase in sanctions in both the United States and abroad after 2000 has resulted in greater deterrence. We are not aware of any empirical studies that test whether the stock price recovery patterns discussed above continue after 2000.
- 48 One possible explanation of the stock price recovery pattern is the market overreacts to the initial announcement of the indictment before quickly reverting to pre-indictment share price levels. This overreaction hypothesis, however, is not inconsistent with under-deterrence. From an optimal deterrence perspective, the key fact is that equilibrium share prices revert to collusive levels. Further, the overreaction interpretation requires one to believe not only that the market dramatically overreacts to negative information, resulting in short-term share prices reflecting the dissipation of future cartel rents and legal costs despite that the former are transitory, but also that the market has not improved its ability to form accurate expectations over a 40-year period despite experience with hundreds of indictments involving publicly traded corporations.
- 49 Statistics on the Department of Justice Antitrust Division criminal enforcement filings are available at <http://www.justice.gov/atr/public/workstats.pdf>.
- 50 Connor & Helmers, *supra* note 32 at 38. These recidivism data are consistent with earlier studies of

price-fixing indictments finding approximately fourteen percent of firms were repeat offenders. See Bosch & Eckard, *supra* note 43 at 309 n. 1 (evaluating price-fixing indictments from 1962-1980); Richard A. Posner, *A Statistical Study of Antitrust Enforcement*, 13 J. L. & ECON. 365, 394-395 (1970) (finding 46 of 320 corporations indicted for price-fixing violations between 1964 and 1968 had been convicted previously and ten had three or more prior convictions).

51 John M. Connor, *Optimal Deterrence and Private International Cartels* (working paper, May 2005).

52 President Woodrow Wilson made the case for shifting penalties from corporations to individuals in his January 20, 1914 remarks to Congress, in which he proposed what later became the Clayton Act:

We ought to see ... that penalties and punishments should fall not upon business itself, to its confusion and interruption, but upon the individuals who use the instrumentalities of business to do things which public policy and sound business practice condemn. Every act of business is done at the command or upon the initiative of some ascertainable person or group of persons. These should be held individually responsible and the punishment should fall upon them, not upon the business organization of which they make illegal use.

51 CONG. REC., 1963 (1914).

53 William Kolasky, when he was a Deputy Assistant Attorney General in the Antitrust Division, said one of the most startling characteristics of cartels "is that they typically involve ... executives who have received extensive antitrust compliance counseling, and who often have significant responsibilities in the firm's antitrust compliance programs." William Kolasky, Deputy Assistant Att'y Gen., Dep't of Justice, Address at the Practising Law Institute Corporate Compliance Conference (July 12, 2009). Kolasky provided a very troubling anecdote about a then-recent DOJ investigation:

When a top executive at [a] firm arranged a meeting with his chief foreign competitor to discuss exchanging technological information, [the firm's general counsel accompanied him to the meeting as part of the firm's extensive compliance program.] [T]he general counsel must have taken some comfort when [the two executives greeted one another as if they had never met before.] ... Imagine how that general counsel must have felt when he learned, during the course of the [DOJ] investigation, that the introduction ... had been completely staged for his benefit.... In fact, the two executives had been meeting, dining, socializing, playing golf, and participating together and with others in a massive worldwide price-fixing conspiracy for years.

*Id.* The conspirators even used code names to refer to their general counsels.

54 See Restatement (Second) of Torts § 317 (Duty of Master to Control Conduct of Servant). For directors,

no liability exists in the absence of red flags which the exercise of reasonable oversight would uncover. Reasonable oversight entails the creation of reporting systems that provide directors with the information necessary to monitor the corporation and compliance programs that ensure the corporation's adherence to applicable law. The sophistication of any reporting system or compliance program, however, remains a matter of business judgment. ... [O]nce a reporting system or compliance program exists, directors generally bear no liability for losses sustained from any deficiencies absent evidence of gross negligence.

Bryan A. McGrane, *The Audit Committee: Director Liability in the Wake of the Sarbanes-Oxley Act and Tello v. Dean Witter Reynolds*, 18 CORNELL J.L. & PUB. POL'Y 575, 586-87 (2009) (citing *In re Caremark Int'l Inc. Derivative Litig.*, 698 A.2d 959, 970-71 (Del. Ch. 1996). *Cf. In re Fed. Nat'l Mortg. Ass'n Sec. Deriv. & ERISA Litig.*, 503 F. Supp. 2d 25, 37 (D.D.C. 2007) (audit committee liable in private litigation only for extreme recklessness).

- 55 *Orrock v. Appleton*, 213 P.3d 398 (Idaho 2009) (holding shareholder insufficiently pled in a case involving a demand by plaintiff that the Board bring suit would be futile).
- 56 U.K. Office of Fair Trading, *The Deterrent Effect of Competition Enforcement by the OFT 71–72* (November 2007) (survey finding business executives and their lawyers regard criminal penalties as the strongest motivating force for antitrust compliance). Anecdotal evidence also supports the intuitive view that jail sentences are a strong deterrent. See *Hearing on Criminal Remedies Before the Antitrust Modernization Comm’n* (Nov. 3, 2005) (statement of Tefft W. Smith, Partner, Kirkland & Ellis LLP). (“Every antitrust compliance presentation I have seen or delivered begins with the threat of jail for individual executives. It then speaks of ‘large’ fines and, lastly dwells on the—certain—avalanche of treble-damages and joint and several liability for the sales of all the co-cartelers.”)
- 57 This effect, which “appears to be based on stigma” is particularly large for “those whose pre-conviction jobs apparently involve trust.” Joel Waldfogel, *The Effect of Criminal Conviction on Income and the Trust “Reposed in the Workmen,”* 29 J. HUMAN RESOURCES 62, 75 (1994). See also Kent R. Kerley & Heith Copes, *The Effects of Criminal Justice Contact on Employment Stability for White-Collar and Street Level Offenders*, 48 INT’L J. OFFENDER THERAPY & COMP. CRIMINOLOGY 65 (2004); John R. Lott, Jr., *The Effect of Conviction on the Legitimate Income of Criminals*, 34 ECON. LETTERS 381 (1990).
- 58 Operating costs for federal prisons are about \$75 per inmate per day, or \$27,252 per inmate per year. *Federal Probation and Pretrial Services System: Reshaping Lives, Protecting Society*, THIRD BRANCH: NEWSLETTER OF THE FEDERAL COURTS, May 2010, at 5.
- 59 See U.S. SENTENCING GUIDELINES MANUAL § 8B2.1 (describing effective compliance programs). *But see* Amendments to the Sentencing Guidelines (effective Nov. 1, 2010), available at <http://www.ussc.gov/2010guid/finalamend10.pdf> (restricting credit for compliance programs).
- 60 *Fanean v. Rite Aid Corp. of Delaware, Inc.*, 984 A.2d 812, 825–26 (Del. Super Ct. 2009) (“An employer [corporation] is liable for negligent hiring or supervision where the employer is negligent ... in the employment of improper persons involving the risk of harm to others or in the supervision of the employee’s activities”) (quoting *Simms v. Christina Sch. Dist.*, 2004 WL 344015 (Del. Super. Ct. Jan. 30, 2004)). *But see* *Stone v. Ritter*, 911 A.2d 362, 369 (Del. 2006) (“Generally where a claim of directorial liability for corporate loss is predicated upon ignorance of liability creating activities within the corporation, . . . only a sustained or systematic failure of the board to exercise oversight—such as an utter failure to attempt to assure a reasonable information and reporting system exists—will establish the lack of good faith that is a necessary condition to liability.”) (quoting *In re Caremark Int’l Inc. Deriv. Litig.*, 698 A.2d 959, 971 (Del.Ch.1996)).
- 61 Current law in both the United States and the United Kingdom allows for the punishment of aiders and abettors in such a situation. See 18 U.S.C. § 2(a) (2006) (“Whoever commits an offense against the United States or aids, abets, counsels, commands, induces or procures its commission, is punishable as a principal”); U.K. Law Commission, *Inchoate Liability for Assisting and Encouraging Crime* § 1.6 (2006), available at [www.lawgov.uk/docs/lc300.pdf](http://www.lawgov.uk/docs/lc300.pdf); *Serious Crime Act*, (2007) ch. 27, pt. 2, § 44–46.
- 62 UK Office of Fair Trading, *The Deterrent Effect of Competition Enforcement by the OFT 72* (November 2007).
- 63 We think it unlikely that the reputational effect of a jail sentence continues to increase when the sentence exceeds some modest threshold—perhaps the one year that denotes a felony.
- 64 The deterrent effect of debarment, like that of jail time, will be heterogeneous across individuals. Debarment would weigh more heavily upon individuals with greater firm- or industry-specific skills, for example, or with abilities tailored to managing a publicly-traded corporation. At a minimum, debarment will be a more cost-effective deterrent than incarceration in some cases and will, *ceteris paribus*, reduce the level of fines and of jail time necessary to achieve a given level of deterrence.

- 65 Swedish Competition Act (2008) ch. 3, art. 24.
- 66 The United States has experience with debarring corporations, not individuals, who have been convicted of bid-rigging from bidding again for federal government contracts. See 48 C.F.R. §§ 9.406-1 to 9.406-5 (authorizing debarment); see also, e.g., *Robinson v. Cheney*, 876 F.2d 152 (D.C. Cir. 1989) (affirming debarment order).
- 67 The Office of Fair Trading, we note, is considering expanded use of debarment in the form of competition disqualification orders. See U.K. Office of Fair Trading, *Competition Disqualification Orders: Proposed Changes to the OFT's Guidance* (August 2009).
- 68 Company Directors Disqualification Act of 1986 (as amended in 2002) § 9A. In 1961, then Assistant Attorney General Lee Loevinger testified in favor of punishment for corporate officials who have actual knowledge or "reason to know of an antitrust violation and authority to stop it but who fail to do so." *Legislation to Strengthen Penalties Under the Antitrust Laws: Hearing Before the Subcomm. on Antitrust and Monopolies of the S. Comm. on the Judiciary, 87th Cong. 1st Sess., 14* (1961) (statement of Assistant Att'y Gen. Lee Loeringer).
- 69 Company Directors Disqualification Act of 1986 (as amended in 2002) § 1.
- 70 See, e.g., *Sec. of State for Business, Enter. & Regulatory Reform v. Sainsbury*, [2009] EWHC 3456 (Ch.).
- 71 Company Directors Disqualification Act of 1986 (as amended in 2000) § 1(1)(a). The OFT recently provided guidance indicating directors will be held responsible not only for violations they actually observe but also for those of which they would have had knowledge had they made "reasonable enquiries." See U.K. Office of Fair Trading, *Company Directors and Competitive Laws: A Consultation on OFT Guidance* (October 2010).
- 72 The SEC has had express statutory authority to seek such an order only since 1990, however, when the Congress authorized the courts to issue an order of suspension or debarment in a securities case—upon finding the defendant, regardless whether he consented to debarment, committed a violation "demonstrating unfitness to serve" as an officer or director of a publicly held corporation. See 15 U.S.C. §§ 77t(e), 78u(d)(2) (2006).
- 73 See, e.g., *Plaintiffs' Motion to Enter Revised Permanent Injunction and Final Order as to Defendant Tarzenea Dixon, FTC v. Your Money Access, LLC.*, No. 07-CV-05147-ER. at 5 (E.D. Pa. Dec. 22, 2009), 2009 WL 5177847 (permanently enjoining a defendant individual from payment processing, including ACH debits and credit card transactions); *Consent Decree*, No. 02-5115 at 6 (C.D. Cal. United States v. D.C. Credit Serv., Inc., July 8, 2002), available at <http://www.ftc.gov/os/2002/07/dcsconsent.pdf> (permanently enjoining defendant from debt collection and assisting in debt collection activities); *Stipulated Judgment & Order for Permanent Injunction*, No. 02-cv-01256 (D. Ariz. *FTC v. Corp. Marketing Solutions, Inc.*, Feb. 6, 2003) (enjoining defendant from telemarketing and assisting or facilitating telemarketing); *Stipulated Final Judgment and Order for Permanent Injunction and Other Equitable Relief, FTC v. Universal Greeting Card Corp.*, No. 02-21753 at 3 (D. Fla. Dec. 17, 2002), available at <http://www.ftc.gov/os/2003/01/ugcstipruffeino.pdf> (permanently enjoining defendant individuals from "[r]eceiving any remuneration of any kind whatsoever from . . . any person engaged in the advertising, marketing, promoting, offering for sale, or sale of any business venture").
- 74 It is already clear that unconsented debarment is constitutional. The United States Supreme Court has heard challenges to the constitutionality of debarment as a remedy for bad acts, based upon the due process, *ex post facto*, bill of attainder, and double jeopardy clauses, and has rejected them all. See *De Veau v. Braisted*, 363 U.S. 144, 157–60 (1960) (rejecting such challenges based upon due process, *ex post facto*, and bill of attainder clauses); *Hudson v. United States*, 522 U.S. 93, 105 (1997) (rejecting challenges to debarment based upon double jeopardy).
- 75 By pursuing a civil case, the DOJ could also seek debarment of individuals whose conduct may not

meet the scienter requirements for a criminal charge.

76 Because debarment can be imposed at a lower social cost than incarceration, the DOJ should calibrate the length of debarment at which the average defendant slightly prefers debarment to incarceration.

77 See Sigyn Monke et al, *Commission Imposes the Highest-Ever Cartel Fine (More than EUR 1.3 Billion) on Four Car Glass Manufacturers*, COMP. POL'Y NEWSLETTER, 2009, No. 1 at 59, available at [http://ec.europa.eu/competition/publications/cpn/2009\\_1\\_15.pdf](http://ec.europa.eu/competition/publications/cpn/2009_1_15.pdf).

# Comment on Antitrust Sanctions

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*Joseph Harrington\**

In their thoughtful article, Douglas Ginsburg and Joshua Wright make five key points towards enhancing cartel deterrence through increased penalties: Collusion is under-deterred and there is little risk of over-deterrence; Corporate penalties cannot be raised to a level sufficient to deter collusion; Individual penalties should be used more aggressively, with an emphasis on debarment; Corporate penalties should not be increased; and Corporate penalties should not be assessed when a company was not negligent. This discussion considers each of these points and then concludes with some additional suggestions.

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## I. Introduction

In their thoughtful article, Douglas Ginsburg and Joshua Wright make five key points towards enhancing cartel deterrence through increased penalties. My discussion will consider each of these points and then conclude with some additional suggestions.

## II. Claim #1: Collusion Is Under-deterred and There Is Little Risk of Over-deterrence. My Opinion: Agree

That there is under-deterrence of collusion would seem to be a point that no reasonable person could dispute. Cartels are still forming, in spite of the well-reported successes of leniency programs, the significant increase in government fines, and the continued intensive use of incarceration by the U.S. Department of Justice. Of course, it could be the case that cartels are being formed by managers who are making mistakes. We can never stop all crime as there will always be criminals who are myopic (focus on the gains and dismiss future possible punishments) or are overly confident in their ability to pull off the “perfect crime.”

However, it appears that illegal collusion remains profitable and thereby a sensible managerial decision. The most striking piece of evidence is that some cartels are profitable even after being convicted. A notable example is the vitamins cartel which—in spite of billions of dollars in government fines and customer damages—appears to have earned additional profits exceeding those financial penalties.<sup>1</sup> If collusion is profitable (or only mildly unprofitable) even when convicted then surely it is *ex ante* profitable in light of not all cartels being caught.

Less obvious, though still compelling in my view, is that we should be unconcerned with over-deterrence. Though, with some rare exceptions, all price-fixing is welfare-reducing, enforcement could be excessive if it induced companies to over-invest in monitoring so as to prevent employees from engaging in collusion. However, there is no evidence that firms engage in any monitoring of that sort. Second, if firms were wrongly convicted of collusion then it could lead to over-deterrence if it caused firms to avoid welfare-enhancing activities out of fear that it might lead to a wrongful conviction. For example, recent work has shown that some research joint ventures (“RJVs”) are associated with collusion.<sup>2</sup> If cartel enforcement discouraged legitimate use of RJVs then there could be over-deterrence. However, Type I error with cartel investigations is small. There are few convicted cartels for which there was much doubt that there was no collusion, perhaps

IN SHORT, THERE IS UNDER-  
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because it is a *per se* offense and the standard of evidence is rather high. In short, there is under-deterrence and little concern about over-deterrence, which makes it compelling to increase penalties.

### III. Claim #2: Corporate Penalties Cannot Be Raised to a Level Sufficient to Deter Collusion. My Opinion: Agree

Realistically, our best guesstimates (let me not give them as authoritative a term as “estimate”) suggest that to push corporate financial penalties to a level that would make collusion unprofitable either exceeds the capacity of many firms to pay or would cause deleterious effects on post-cartel competition by causing some firms to exit or weaken them financially.<sup>3</sup> It could take doubling or tripling financial penalties in the United States and EU to do so. This is not to say that there is still not room to increase corporate penalties, especially since they are not high in many jurisdictions. Rather, the point is that corporate penalties, by themselves, are unlikely to adequately deter collusion in light of realistic probabilities for discovering and convicting cartels.

The authors make this point with the following analysis. Let  $\rho$  denote the probability of being caught and convicted in any period (say, a year),  $\pi$  be the additional per period profit from colluding, and  $\gamma$  be the penalty multiple so that the penalty is  $\gamma\rho$ . Collusion is then unprofitable if and only if:

$$\rho\gamma\pi > \pi \text{ or } \gamma > \frac{1}{\rho}$$

That is, the expected penalty from colluding,  $\rho\gamma\pi$ , must exceed the additional profit from colluding,  $\pi$ . For example, if  $\rho = .2$ —so there is a 20 percent chance of a cartel being discovered and convicted in a given year—then the required penalty is five times the size of the additional annual profit generated by collusion. That is a multiple several times the amount currently levied even in the jurisdictions with the most severe corporate penalties. The authors conclude that, for plausible probabilities of penalizing cartels, the penalties must be very high.<sup>4</sup>

This analysis, however, underestimates the deterrence value of penalties because it assumes that a cartel, in order to be penalized, must be caught in the same period that it colluded. In practice, a cartel is liable for the profits it earned in all periods in which it colluded, which means there are multiple opportunities to make a cartel pay for its crimes. Of course, having caught a cartel, the longer one goes back in time, the less likely there is adequate evidence to document such collusion and thereby assess penalties. Also, interest is not usually assessed on past collusive profits. Both of these effects can be captured by weighting past collusive profits less in the calculation of the penalty.

To be more exact, assume that the penalty associated with a period of collusion is reduced by  $1 - \beta$  for each period that has transpired since that period, where  $0 < \beta < 1$ . Let  $\delta$  be the firm's discount factor, where  $0 < \delta < 1$ ; that is, \$1 tomorrow is worth only  $\delta$  today. The expected discounted penalty from being caught in the current period is  $\rho\gamma\pi$  as calculated in the static analysis of the authors. The expected discounted penalty from being caught in the period after the profits were earned is  $\rho(1 - \rho)\delta\beta\gamma\pi$ , where  $\rho(1 - \rho)$  is the probability of being caught in that period,  $\beta\gamma\pi$  is the depreciated penalty, and it is discounted by  $\delta$  since firms avoid interest. One can continue in this manner to calculate the expected discounted penalty when caught two periods later and so forth. The full expected penalty associated with colluding is.<sup>5</sup>

$$\rho\gamma\pi + \rho(1 - \rho)\delta\beta\gamma\pi + \rho((1 - \rho)\delta\beta)^2\gamma\pi + \rho((1 - \rho)\delta\beta)^3\gamma\pi + \dots = \frac{\gamma\pi\rho}{1 - (1 - \rho)\delta\beta}$$

Thus, a dynamic analysis says that deterrence requires  $\gamma$  to satisfy

$$\frac{\gamma\pi\rho}{1 - (1 - \rho)\delta\beta} > \pi \text{ or } \gamma > \frac{1 - (1 - \rho)\delta\beta}{\rho}.$$

Since

$$\frac{1}{\rho} > \frac{1 - (1 - \rho)\delta\beta}{\rho}$$

then the penalty multiple does not have to be as high as the authors' static analysis would suggest in order to make collusion unprofitable. As shown in Table 1 for some plausible parameter values, the difference can be significant. The penalty multiple required to deter is 2 to 3 times smaller in size when using the dynamic measure. However, even with this correction, I do not disagree with their claim that there is under-deterrence and that corporate fines and damages will most likely be insufficient to deter collusion.

**Table 1**

$\rho$	$\delta$	$\beta$	Static Measure $\frac{1}{\rho}$	Dynamic Measure $\frac{1 - (1 - \rho)\delta\beta}{\rho}$	Ratio of Static Measure to Dynamic Measure
.1	.9	.8	10.00	3.52	2.84
.15	.9	.8	6.67	2.59	2.58
.2	.9	.8	5.00	2.12	2.36
.15	.9	.9	6.67	2.08	3.21
.15	.9	.7	6.67	3.10	2.15
.15	.95	.8	6.67	2.36	2.83

## IV. Claim #3: Individual Penalties Should Be Used More Aggressively, with an Emphasis on Debarment. My Opinion: Agree

If it proves difficult to make collusion unprofitable then an alternative strategy is to disrupt the alignment of managers' interests with those of shareholders. Shareholders (or their representatives in the form of the Board of Directors) strive to design compensation schemes to induce managers to maximize profits which, if collusion is profitable, implicitly means inducing them to collude. Individual penalties focused on managers can counteract those incentives, which is the thrust of the authors' proposal. What makes this line of attack especially compelling is that, in contrast to corporate penalties, individual penalties are modest if not non-existent in many jurisdictions. Hence, there is room for significantly increasing those penalties.

WHERE THE AUTHORS HAVE A UNIQUE TWIST IS TO PUT THE EMPHASIS ON DEBARMENT RATHER THAN FINES AND IMPRISONMENT.

That point is obvious enough. Where the authors have a unique twist is to put the emphasis on debarment rather than fines and imprisonment. Since that is a more debatable point, let me focus upon it. There are several arguments in favor of debarment. First, if it means adding debarment to existing fines and imprisonment then "more is better" if the objective is to deter collusion. Second, as noted by the authors, barring employment as a manager—as opposed to incarceration—avoids prison costs. (However, if debarment is longer than jail sentences then the cost from debarment may be higher when taking into account the foregone social value from having someone in a less productive profession.) Finally, for those jurisdictions for which incarceration is not politically viable—as they do not believe collusion should be a criminal offense—debarment may be a more palatable punishment, but still one that is more severe than individual fines.

In assessing the efficacy of debarment, let me pose three questions. First, is debarment severe enough? Here it depends on what it is a person is barred from doing. If debarment means not being a senior manager in any company then that will clearly be severe for employees who, at the time of price-fixing, were senior managers. For those who were not, it cuts off future promotion prospects but the immediate impact is less. One point relevant to this question is that the authors also propose that the use of debarment can reduce the need for incarceration. However, I would first need to be convinced of the efficacy of debarment before supporting a reduction in jail sentences. On its face, imprisonment seems a harsher punishment than not being able to work as a manager and, in light of the current state of under-deterrence, I would not want to risk reducing the severity of individual penalties.

Second, is debarment practical? I am totally uninformed of the ease with which debarment can be implemented but it does not appear straightforward. Is it unambiguous how one defines “senior manager” or any managerial category? Could convicted employees easily avoid compliance? Will it require a government body to police convicted price-fixers to ensure that they comply? These practical matters need to be addressed.

Third, as with any individual penalty, can debarment be undone by the corporation? If collusion is in shareholders’ interests then there is an incentive for them to compensate managers for individual penalties so as to induce them to collude. Such compensation could either be done *ex ante*—before collusion occurs—or *ex post*—after they have been convicted. While there may always be a bonus big enough to induce collusion, the size of it could be sufficiently large that it would be difficult to provide such pay without creating suspicions elsewhere within the firm.

CAN DEBARMENT BE UNDONE  
BY THE CORPORATION?

Though collusion might generate tens of millions of dollars in additional profit—and thus warrant providing a million dollar bonus to an employee who fixes prices—suppose that an employee makes \$100,000 a year. How easily can such a huge bonus be explained to uninvolved superiors? And if the money is “under the table,” will it be picked up by company auditors? The point is that bigger penalties—whether fines, jail time, or debarment—make it more difficult to *ex ante* compensate for the risks of price-fixing without leaving a suspicious trail.

In addition, while involved senior managers can provide compensation to lower level employees to induce them to collude, can a CEO be compensated to induce collusion? A Board of Directors will not put themselves at legal risk in knowingly supporting collusion (unless perhaps they have considerable shareholdings). At least for CEOs, I don’t think it’s obvious that the corporation can undo a rise in individual penalties.

*Ex post* compensation occurs when an employee has been convicted and penalized. While it can be illegal for a firm to reimburse an employee for fines, there are indirect ways to do so, whether it is promotion or bonuses at a later date. Here, debarment has an advantage in that the lack of continued employment limits the extent to which an employee can be compensated and thereby individual penalties undone. There is also less of an incentive for the company to compensate. As the involved party will not be in the company’s employ, the only reasons to do so would be out of some notion of fairness or to incentivize other employees to take personal risks for the benefit of shareholders.

## V. Claim #4: Corporate Penalties Should Not Be Increased. My Opinion: Disagree

The authors state:

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“... we think it is questionable, indeed doubtful, whether a \$100 million fine—or even a fine of over EUR 1 billion—when imposed upon a corporation because one of its executives fixed prices, serves the primary goal of an antitrust sanction ... When fines are levied against a publicly traded corporation, the ones burdened are consumers and possible shareholders, two groups almost certainly unable to affect the conduct of the corporation.”

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This is a disturbing claim which, to my knowledge, lacks supportive empirical evidence. What it says is that corporate governance is so ineffective that senior managers are not influenced or affected by what matters to shareholders, for shareholders surely care whether the fine is \$100 million or many times larger. Putting this matter another way, suppose we were to replace “fixed prices” with “entered a market.” Do we really believe that a manager’s entry decision would be uninfluenced by whether entry cost \$100 million or \$1 billion? While the dys-

functionality of corporate governance is clearly documented, I don’t believe it is so messed up that managers are not impacted by the penalties levied by litigation that are directly attributable to their actions.

WHILE THE DYSFUNCTIONALITY OF CORPORATE GOVERNANCE IS CLEARLY DOCUMENTED, I DON’T BELIEVE IT IS SO MESSED UP THAT MANAGERS ARE NOT IMPACTED BY THE PENALTIES LEVIED BY LITIGATION THAT ARE DIRECTLY ATTRIBUTABLE TO THEIR ACTIONS.

In contrast to the authors, I am of the belief that financial penalties levied upon the corporation do influence managerial decisions. One’s view on this matter is of particular relevance with regards to the issue of customer damages, as some jurisdictions—such as the EU—are

adopting or considering the adoption of customer damages. I am firmly in support of expanding customer damages for three reasons. First, it increases corporate penalties. Second, it compensates those harmed, which is of intrinsic value. And, third, it makes for higher power incentives for customers to discover, report, and sue price-fixers. Let us not forget that private litigation in the United States—even without public prosecution—has always been important for enforcing Section 1 of the Sherman Act.

## VI. Claim #5: Corporate Penalties Should Not Be Assessed When a Company Was Not Negligent. My Opinion: Agree in Principle But, in Practice, Disagree.

The authors state:

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“If a company has made a reasonable effort to comply with the antitrust law, and an employee nevertheless engages in price fixing, then it makes no sense to fine the corporation, or to sanction the directors or officers. On the other hand, if the directors or officers were negligent in performing their duty to supervise the employee who actually fixed prices, then they should be held accountable along with the perpetrator.”

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Unjustly penalizing a corporation would be more of a matter for concern if most episodes of collusion were done for the benefit of a manager rather than shareholders. That is, a manager enhances the performance of his or her division in order to earn bonuses, promotions, and other forms of compensation but, in delivering these rewards, the manager's superiors are deceived as they are unaware of the possibility of corporate penalties. In other words, a manager should not be rewarded as much for raising profit illegally because there is a liability being created for the firm. For that scenario to be relevant, collusion would need to improve measures of the manager's performance, while reducing shareholder wealth. That does not, generally, seem to be the case. Furthermore, many recent cartels involve senior managers—perhaps even the CEO—whose interests are most closely aligned with those of shareholders.

Still, even when collusion is profitable, the authors are correct that a corporation that has been diligent in preventing illegal price-fixing should not be punished. It is not only unjust but it reduces the incentives to be diligent. This is why, *in principle*, I agree with the authors. My problem is whether it is practical. Is it realistic that an outside observer such as a competition authority can determine whether senior management was assiduous in monitoring for collusion so that they and the corporation should not be punished? Simply having an antitrust compliance program is inadequate as we

IS IT REALISTIC THAT AN OUTSIDE OBSERVER SUCH AS A COMPETITION AUTHORITY CAN DETERMINE WHETHER SENIOR MANAGEMENT WAS ASSIDUOUS IN MONITORING FOR COLLUSION SO THAT THEY AND THE CORPORATION SHOULD NOT BE PUNISHED?

know cartels have occurred with such programs in place. If a corporation were to actually create a “cartel detection task force,” what would it do? Tap phones? Follow suspicious employees? Deploy the latest econometric methods to determine whether prices are collusive? It would be easy to document the use of such methods while, at the same time, not being serious about how they are used.

And let us not forget that there are indirect ways to promote price-fixing without coming out and telling lower level employees to fix prices. A senior manager can berate a manager for low profits and promulgate that prices must be stabilized, while never saying the C word. Not assessing corporate penalties will just make collusion more profitable for the firm that can cleverly signal to its employees to collude, while creating the appearances of diligent monitoring. In sum, I don’t think it is realistic to achieve a level of confidence that a corporation has been truly diligent enough in preventing price-fixing that they should be left off the hook for penalties.

MY PROPOSAL IS TO DEVELOP  
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PART OF A CARTEL BY CREATING  
INCENTIVES FOR AN EMPLOYEE TO  
TURN IN A FELLOW EMPLOYEE.

In concluding this comment, I’d like to make two suggestions along the lines of altering the incentives of individuals. If governments pursue the authors’ suggestion of promoting individual penalties then let us make the most out of them by creating “leniency program” effects within a company. As we know, a leniency program can

destabilize and uncover cartels by disrupting the common incentive among firms to keep the cartel hidden. A firm may inform the authorities because of its concern that another cartel member will beat them to the competition authority’s door and receive leniency.<sup>6</sup> My proposal is to develop policies that heighten concerns *within* a firm that is part of a cartel by creating incentives for an employee to turn in a fellow employee. One way to do so is to give an employee the opportunity for leniency if he or she can deliver evidence implicating a higher-level employee. A senior manager involved in a cartel would not only need to worry about his or her rivals going to the authorities but also their underlings. This would have a secondary benefit in that it would incentivize agents to collect and create evidence—retain documents, secretly tape meetings, etc.—so that they have what is needed to “convict” a higher level manager and acquire leniency for themselves. Such evidence creation and retention has already occurred in some cartels including those in the Australian packaging industry<sup>7</sup> and fine arts auction houses.<sup>8</sup> Knowing that such evidence could get them out of fines, jail, and/or debarment would surely encourage some employees to build a case against their superiors.

Finally, a largely unexploited avenue for discovering collusion is to create incentives for people uninvolved in a cartel, but who have information, to cooperate with the authorities. A whistleblower program offers financial rewards in exchange for delivering evidence of collusion. Since 2005, South Korea has had

such a program in place and, for example, a whistleblower received a reward of around \$75,000 for information relating to a cartel among welding rod makers. The United Kingdom's program was launched in March 2008 with rewards of up to £100,000. To my knowledge, other jurisdictions have not instituted whistleblower programs.

Furthermore, the financial incentives provided by existing programs are wholly inadequate. An employee who blows the whistle on his or her company will, most likely, have little future there. Rewards must then provide financial independence if they are to create incentives to report. With government fines in the tens and hundreds of millions of dollars or Euros for large cartels, such rewards are surely feasible in some cases. It has already been suggested by others that the U.S. False Claims Act is a relevant model. In that program a non-government employee can file actions for fraud against federal government contractors and receive a reward up to 25 percent of the government's total recovery; now we're talking serious money!

With the proper rewards, I believe such a program will deliver some cases, for there are documented episodes in which uninvolved employees became suspicious. If a whistleblower program is put in place then a component of an antitrust compliance program should be informing all company employees of its existence. I also like a feature of the U.K. program which is that someone who is involved in the cartel, but not in a significant way, can, in parallel, apply for leniency and rewards.

## VII. Conclusion

In concluding, the paper by Douglas Ginsburg and Joshua Wright is a well-reasoned and constructive proposal for enhancing cartel enforcement through the use of individual penalties. I wholly agree with aggressively pursuing this avenue. However, in light of evidence of continued cartel formation and the profitability of collusion, I would add debarment to the existing array of penalties rather than substitute it for other penalties. Incarceration still seems to be the most effective deterrent, and I would promote more widespread use of customer damages. While we have made significant progress in discovering and punishing cartels, cartel activity remains high which means that we should push forward on as many fronts as economists and lawyers can dream up. ▼

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1 John M. Connor, *The Great Global Vitamins Conspiracy: Sanctions and Deterrence*, AAI Working Paper 06-02, (Feb. 2006). Consistent with this view is Lande, who argues that damages paid under settlement tend to be single, not treble, in the United States, see Robert H. Lande, *Are Antitrust 'Treble' Damages Really Single Damages*, OHIO STATE L.J., 54, 115-173. (1993).

2 Michelle S. Goeree & Eric Helland, *Do Research Joint Ventures Serve a Collusive Function?* Institute for Empirical Research in Economics, University of Zurich Working Paper Series, ISSN 1424-0459 (May 2010).

- 3 These deleterious effects need not always arise even when the financial penalty is many times the present value of future profits. If a division of a company has been convicted, then the company may have ample resources to pay the penalty.
- 4 What is a “plausible” probability is subject to considerable guesswork, as the authors note. They use an estimate of 13-17 percent though this is actually the probability of conviction conditional on being caught, and therefore is surely an over-estimate. Of course, what matters is the subjective probability assigned by those who consider forming a cartel, and who knows what that may be.
- 5 This calculation implicitly assumes the cartel does not internally collapse but that effect can be captured in the  $\beta$  parameter.
- 6 Recent experimental evidence supports the hypothesis that the main driver of a leniency application is concern about being pre-empted by a rival firm, rather than being caught by the competition authority; see Maria Bigoni, Chloé Le Coq, Sven-Olof Fridolfsson, & Giancarlo Spagnolo, *Trust, Salience, and Deterrence: Evidence from an Antitrust Experiment*, SSE/EFI Working Paper Series in Economics and Finance No. 696, (January 2010).
- 7 Jim Hodgson, head of Amcor’s cardboard packaging division, secretly recorded meetings with his superiors and with employees at rival Visy, all of whom were also involved in the cartel. *Amcor Scammer Still on Payroll*, THE AUSTRALIAN, (December 10, 2007).
- 8 “[Sotheby’s CEO Dede Brooks] was startled by the scope of some of [Christie’s CEO Christopher] Davidge’s papers. ‘I was surprised that he’d kept notes of our meetings,’ she told me, ‘and that he’d kept them. I wish I’d known. Then I would never have talked to him.’” CHRISTOPHER MASON, THE ART OF THE STEAL (2004). These documents were central to the U.S. case. Christie’s received leniency.

# Antitrust Oversight: More an Art than a Craft

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*Pieter Kalbfleisch\**

Would it lead to more effective sanctioning of cartel violations if attention were shifted from sanctioning undertakings to primarily sanctioning those individuals who, de facto, either exercised leadership over or gave instructions to a cartel violation, along with those who refrained from taking any measures to stop the violation, even though they had the power to stop the violation or to prevent it from happening? This article will examine why the answer to this question is both yes and no.

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With thanks to Esther Lamboo, Secretary to the Board, for her efforts she put in writing this article.

## I. Introduction

Would it lead to more effective sanctioning of cartel violations if attention were shifted from sanctioning undertakings to primarily sanctioning those individuals who, de facto, either exercised leadership over or gave instructions to a cartel violation, along with those individuals who refrained from taking any measures to stop the violation, even though they had the power to stop the violation or to prevent it from happening? Yes and no. Cartels will not become a thing of the past if only undertakings are dealt with, as Ginsburg & Wright have also noted. Despite the ever-increasing fines that are imposed, it is obvious that forming a cartel is and will continue to be a tempting prospect. The option of sanctioning the undertakings' executives by imposing personal penalties, such as a disqualification order or a prison sentence, might change this. However, I must add that merely the power to impose fines on executives will not necessarily bring about this change. Personal fines lack a sufficiently deterrent effect if the undertaking indemnifies the executive in question against such fines, or reimburses them.

It is not my preference to solely sanction individuals for conduct that violates competition law. In my opinion, penalties on individuals are necessary to complement fines on undertakings as deterrents against antitrust violations. I would therefore argue in favor of using a combination of compliance tools in order to achieve maximum compliance with competition regulations.

IN MY OPINION, PENALTIES ON INDIVIDUALS ARE NECESSARY TO COMPLEMENT FINES ON UNDERTAKINGS AS DETERRENENTS AGAINST ANTITRUST VIOLATIONS.

For the Netherlands Competition Authority ("NMa"), as regulator in the Dutch context, it is about looking at, on a case-by-case basis, what solution can and should be chosen that does justice to the NMa's mission of making markets work, as derived from the Dutch Competition Act. This calls for a considerable degree of leeway with respect to the regulator's actions within the existing legal and jurisprudential boundaries. Oversight thus becomes more of an "art" than a "craft." The NMa's role as regulatory body is explained in more detail below, as well as the system of enforcement of the Dutch Competition Act. The NMa's powers and tools will be discussed, including what principles the NMa applies when using those powers and tools. In addition, attention will be focused on a power the NMa does not possess, which is the power to impose a disqualification order. Finally, criminal enforcement of antitrust regulations and the deterrent effect of fines will be dealt with.

## II. The NMa as Regulator

In 1998, the NMa was charged with enforcement of the Dutch Competition Act. The NMa was to put an end to the "special status" of "the Netherlands as

Europe's cartel paradise." In part because of this objective, the NMa's actions are not so much aimed at maximum enforcement of the Dutch Competition Act as at maximum compliance—in other words, stimulating behavior that is in accordance with antitrust standards.

From the onset, the NMa knew perfectly well that enforcement actions alone would not be enough for achieving its objectives. It is reasonable to expect that undertakings active in the Dutch market, or in other geographical markets for that matter, are aware of the rules and regulations in place, that they comply with them, and that, if necessary, they consult professional advisors in all of their activities. The NMa has, nevertheless, put and is still putting a tremendous amount of time and effort in providing market participants with education and guidance regarding competition laws. In the early years of its existence, the NMa predominantly provided general education about competition rules and the NMa's tasks and powers. Later, the NMa also started to provide sector-specific education, for example, to the health care industry. In addition, the NMa is willing, under certain conditions, to answer concrete questions from a market participant in a so-called informal opinion.<sup>1</sup>

In the beginning, most of the NMa's time and resources were spent on numerous exemption requests.<sup>2</sup> In addition, the first steps were taken, albeit tentative ones, in enforcing the Dutch Competition Act. Cartel oversight also took off, in part because of the 2002 evaluation of the Dutch Competition Act and the conclusions of the report of the parliamentary inquiry committee into the Dutch construction industry.<sup>3</sup> The NMa also began to take action not only as a result of complaints or tip-offs,<sup>4</sup> but also on its own initiative (for example as a result of media reports).

The surge in cartel oversight is also related to the repeal, in 2004, of the option to apply for an exemption from the cartel prohibition (as a result of bringing EC antitrust law<sup>5</sup> up to date). Instead, the criteria on the basis of which the NMa used to be able to grant an exemption are now legal exemptions from the prohibition of cartels per Section 6, paragraph 1, of the Dutch Competition Act. Thus, undertakings have been forced to do self-assessments since 2004. This change has also allowed the NMa to free up resources to investigate possible violations of the Dutch Competition Act.

Shortly after the start-up phase, in 2004, the NMa was faced with a widespread cartel in the Dutch construction industry, involving around 1,400 undertakings, of which more than 1,200 were fined a total of almost EUR 300 million. To assess the numerous violations, the NMa opted for an innovative approach, which proved to be successful: The NMa offered those construction firms, that were willing to accept the facts and violations the NMa found them guilty of, the opportunity to go through an expedited procedure (so-called fast-track procedure) in exchange for a fine reduction of 15 percent. More than 80 percent of the 1,200 undertakings in question agreed to these conditions, accepting the

offer of an expedited procedure combined with a 15 percent fine reduction. Only a handful of undertakings appealed the fines. The majority of these appeals were ruled in the NMa's favor.

In the twelve years that the NMa has been enforcing the Dutch Competition Act, the discussions inside and outside of the courtroom have shifted from issues concerning procedural matters and powers relating to the NMa's enforcement's actions to the material side of cases, thereby also focusing on the fines set by the NMa. Fines for anticompetitive behavior are becoming higher and higher, as Ginsburg & Wright noted. Fines, including high ones, are a natural part of the kind of professional approach towards antitrust law that the NMa strives for.

The self-assessment trend, introduced by the 2004 modernization of antitrust law, is also reflected in the principle of high trust. This principle was introduced in 2008 in Dutch competition law and other regulatory areas, and was presented by the Dutch Minister of Economic Affairs as the preferred method of enforcement.

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The idea behind the high-trust principle is that, on the one hand, fewer people and resources are needed to investigate conduct and activities that *prima facie* actually benefit competition. On the other hand, more people and resources are needed to track down and severely sanction harmful hard-core cartels, which means imposing high fines. The principle of high trust was laid down in the new policy rules that the Dutch Minister of Economic Affairs set in 2009, as suggested and applied by the NMa.<sup>6</sup> The amendments that the Minister of Economic Affairs made to the original fining policy rules enable the NMa to impose higher fines than ever on violators of the Dutch Competition Act.

It should be noted that the level of the fines has been capped. The Dutch Competition Act set a legal maximum of 10 percent of the global turnover of the undertakings in question. As equally important—or possibly even more important—is the fact that virtually all undertakings that are imposed a fine by the NMa file an appeal against their fine with the court, which tests each fine against the principle of proportionality.

That the high-trust principle is the cornerstone of the NMa's approach of assessing antitrust cases does not take away the fact that, in any concrete case, a different enforcement instrument (other than fines) may be selected. In order to ensure transparency, consistency, and proportionality in all of its actions, the NMa has established criteria for making such a choice in any given case. These are: 1) the violation is immediately and permanently suspended; 2) benefits go directly and appreciably to consumers; 3) interested third parties' interests are not harmed in any way; 4) structural adjustments supersede cultural or behav-

ioral adjustments; and 5) there is no clear hard-core violation of the competition regulations.

In each case, it needs to be examined what enforcement instrument is the most effective to stimulate compliance with the Dutch Competition Act. Alternative enforcements vary between making arrangements with undertakings about measures to be taken (such as damage control, compensations, or adjusting the form of cooperation) and encouraging and stimulating the creation and adoption of a compliance program. The benefits of this form of enforcement include time savings, a rapid change in behavior among undertakings, a reversal of the violation, and direct advantages to consumers.

As I mentioned at the beginning, and which is contrary to Ginsburg & Wright, I am in favor of applying a combination of enforcement instruments to achieve maximum compliance with antitrust regulations, instead of shifting the focus from sanctioning undertakings to strictly sanctioning individuals. However, this does not mean that I do not share their opinion of individual penalties having a greater deterrent effect, provided that these individuals can be personally affected. Imposing fines on individuals alone—and not the undertaking—is not enough to realize the desired deterrent effect. I have already

explained that the undertaking could indemnify the individual, or it could reimburse the fine, either directly or indirectly.

UNFORTUNATELY,  
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HAVE NOT YET BEEN INTRODUCED  
IN THE NETHERLANDS.  
PERSONALLY, I AM ALL FOR  
INTRODUCING THIS TYPE OF  
PENALTY IN ANTITRUST LAW.

This problem of indemnification or reimbursement is less of an issue, if one at all, with other types of penalties on individuals, such as prison sentences or disqualification orders. Unfortunately, disqualification orders have not yet been introduced in the Netherlands.

Personally, I am all for introducing this type of penalty in antitrust law. Considering the reputation that the Netherlands had until 1998 of being Europe's cartel paradise, I am additionally a proponent of sanctioning both the undertakings as well as the individuals that gave instructions to the cartel violation.

### III. The Dutch Competition Act's Enforcement System

#### A. ADMINISTRATIVE LAW ENFORCEMENT

Competition law in the Netherlands is embedded in administrative law, most importantly the General Administrative Law Act ("Awb"). Although criminal enforcement may become part of our future in the coming years,<sup>7</sup> the NMa currently imposes fines and other measures through administrative decisions, which are reviewed by specialized administrative courts. These courts are the

District Court of Rotterdam and the Dutch Trade and Industry Appeals Tribunal (“CBB”).

When the Dutch Competition Act was established, lawmakers deliberately opted for a system of administrative law enforcement instead of a system of criminal law enforcement, such as the one that existed under the then Dutch Economic Competition Act (“WEM”). Although administrative law enforcement was not new, back in 1998, the NMa, under the Dutch Competition Act, did receive powers that, at the time, were more far-reaching. This development led to heated discussions in Dutch parliament on, among other things, the principle of the two-tier system.

The reason behind the lawmakers’ choice to enforce the Dutch Competition Act through administrative law is twofold: 1) with a view to achieving the objectives of the Act, it is more effective to make an administrative body responsible for the use of different legal enforcement instruments, and 2) the administrative body’s expertise can be optimally utilized through direct involvement in both the investigation and the assessment phases when dealing with violations of the Dutch Competition Act (two-tier system), which is obviously safeguarded by a critical *ex-ante* judicial test.

## B. TWO-TIER SYSTEM

As already mentioned earlier, the two-tier system laid down in the Dutch Competition Act means that the NMa has both the power to investigate violations of the Dutch Competition Act as well the power to issue decisions, including fining decisions. Despite the fact that this particular model has sparked numerous (political) debates, the model has proven itself to be efficient and effective. For the sake of legal protection however, lawmakers have separated those officials who exercise oversight (i.e. investigation) from those who impose sanctions—the so-called “Chinese wall.” This separation is laid down in Section 54a of the Dutch Competition Act, which states that NMa officials who are involved in the drawing up of the report and in the investigation that preceded that report are not also involved in sanction procedure activities.

The NMa has always known that a strict implementation of the Chinese wall-rule would be of vital importance to its authority. In all enforcement dossiers, the NMa maintains a strict separation between the investigation phase (including drawing up the report) and the sanctioning phase; different departments carry out these phases. When the report has been signed by the director of the Competition Department, the report and the entire dossier is handed over to the Legal Department, which issues the decision. All of these subsequent activities are recorded and filed in the dossier as well.

THE NMA HAS ALWAYS KNOWN THAT A STRICT IMPLEMENTATION OF THE CHINESE WALL-RULE WOULD BE OF VITAL IMPORTANCE TO ITS AUTHORITY.

Even though the NMa has been accused, and sometimes still is accused, of bias, bias has never been officially claimed in court proceedings. However, an accusation of bias was the main issue in a case against another Dutch regulator, the Netherlands Authority for the Financial Markets (“AFM”). The CBb reversed an important fining decision the AFM had imposed on Fortis Bank for insufficient separation of duties.<sup>8</sup> In the AFM’s case, it concerned the separation on the Board level. The CBb allows the board to be involved in cases during the investigation phase, provided that its involvement is limited to the investigation’s objective, general instructions, and monitoring the investigation’s progress and execution. In the Fortis case, however, one AFM board member’s involvement went further. The CBb ruled that the board member was incapable of rendering a decision on the alleged violation with the required objectivity and impartiality, which meant he should have recused himself.

The fact that the NMa is applying the Chinese wall-rule strictly as well as correctly has also been noted in a 2007 report by the Netherlands Court of Audit.<sup>9</sup> In its report, it concluded that the NMa has sufficiently implemented the legally required separation of duties between investigation and sanctioning in cartel and abuse cases, and that this separation works in practice.<sup>10</sup>

### C. POWERS AND INSTRUMENTS

For its investigations into violations of the Dutch Competition Act, the NMa has been granted a number of far-reaching powers, including the power of entering undertakings’ premises, the power of demanding information, and the power of inspection, all with the assistance of the police if necessary. In addition, for its oversight and investigations, the NMa can impose the general obligation to cooperate whenever the regulator demands individuals do so. This may involve providing information or making documents available for inspection. The NMa has the power to fine individuals who refuse to give the kind of cooperation the NMa can reasonably ask them to give.<sup>11</sup>

The NMa has outlined a number of principles for the use of its powers and instruments. The key principles behind the NMa’s actions are that its actions be aimed at inducing behavior that is in accordance with antitrust standards, and that they are based on the violation’s merits and scope. Other principles the NMa applies are to take action the moment a violation has come to its attention, in an efficient and effective manner, while applying the principles of sound administration.

It should be noted that violations do not always necessarily result in the use of a legal enforcement instrument. Alternatives that may play an equally important role in enforcement include stern conversations, informal opinions, or drawing up and adopting a compliance program, something I will touch upon later. Should these types of action have the desired effect, which is behavior in accordance with antitrust standards, then they render the use of legal enforcement

instruments no longer necessary. In other words, the NMa uses a combination of instruments. After all, not every situation needs to be dealt with in exactly the same way—at the end of the day, the NMa just wants its actions to have effect.

I would like to add that, with regard to the principle that the NMa takes action the moment a violation comes to its attention, other regulators may also inform the NMa of a violation. The NMa maintains good relationships with other regulators in the Netherlands, and it has concluded cooperation protocols with a large number of them. In a particular sanction case the NMa is currently dealing with, the NMa had received evidence from the Dutch Fiscal Information and Investigation Service and the Dutch Public Prosecution Service, which had collected evidence in a tax fraud case regarding participation in a criminal organization. This evidence, collected in a criminal investigation, consists of oral statements, wiretap transcripts, and supporting evidence (in writing).

AFTER ALL, NOT EVERY SITUATION NEEDS TO BE DEALT WITH IN EXACTLY THE SAME WAY—AT THE END OF THE DAY, THE NMA JUST WANTS ITS ACTIONS TO HAVE EFFECT.

The question that subsequently arises is whether the NMa is allowed to use evidence that was collected in a criminal law investigation in its administrative law enforcement of the Dutch Competition Act. This question was brought up in another NMa case related to its investigation into bid-rigging in tenders. Here, the NMa used wiretaps it had received from the Dutch Public Prosecution Service in a criminal law investigation into possible corruption by civil servants and possible bribery of civil servants. The undertakings involved in this case started injunction proceedings, claiming that providing the NMa with the wiretap transcripts led to a misuse of power by the Public Prosecutor, and even to a violation of the right to privacy in Article 8 ECHR, meaning that this evidence was illegally obtained. Both the NMa and the Public Prosecutor argued strongly, stating that there is no legal impediment for this exchange of information between the two regulators and that Article 8 ECHR was not at stake.

An important issue was that there was no interference by the NMa in the Public Prosecutor's investigation. The NMa was not involved in the wiretap search itself, nor in the decision to start the wiretapping. In its ruling of 26 June 2009,<sup>12</sup> the judge in these interlocutory proceedings ruled in favor of the Public Prosecutor and the NMa on all counts. The judge stated that the concept of “substantial public interest” needs to be interpreted as including the economic welfare of a country. Since the NMa is charged, among other things, with the enforcement of the Netherlands Competition Act and, in particular, with the investigation of cartels, illegal price-fixing agreements, and other forms of collusion, there is a substantial public interest when the economic welfare of the Netherlands is potentially at risk. Therefore, making the wiretaps available to the NMa was lawful.

In addition, the judge concluded that the right to privacy under Article 8 EHCR had not been violated by providing the wiretaps to the NMa. The judge concluded that providing the NMa with the wiretaps was not disproportional when considering the economic welfare at risk, and that the information concerning the possible, mutual price-fixing agreements between construction companies could not have reasonably been obtained in a different, less disadvantageous way, since such agreements are not generally written down. Although wiretapping remains the exclusive power of the Public Prosecutor on which the NMa does not have any influence, this judgment does make clear that, where the wiretap search leads to information on possible cartel behavior, this information can be lawfully provided to the NMa and used as evidence in cartel investigations.

#### D. COMPLIANCE

Prevention of violations of the Dutch Competition Act can be realized by, among other things, undertakings introducing a compliance program. The purpose of such a program should be to change the culture in the undertaking or industry that considers violating antitrust regulations (in varying degrees) to be normal.

A compliance program should be established, implemented, and monitored by the undertaking or trade association themselves. Such a program should at least include that: 1) everyone within the undertaking or the industry adhere to the compliance program; 2) monitoring takes place both bottom-up as top-down, and that everybody informs each other; 3) there is permanent education, both theoretical as well as practical education (e.g. by holding a “mock dawn raid”); 4) compliance officers get appointed; 5) the accountants, including external ones, are required to inform the undertaking’s board of directors and/or the board of supervisory directors about potential abuse, possibly including the requirement to consider applying for leniency; and 6) in case a violation is detected, it is immediately terminated by severing all ties with the cartelists. At this time, the undertaking’s board of directors or board of supervisory directors should encourage the application for leniency. The advantages of leniency are that a simpler gathering of evidence may help a regulator reach the completion of a case faster, which results in less costs to all parties involved, in a reduction of “naming and shaming,” and in the destabilization of cartels.

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ASSOCIATION THEMSELVES.

However, having a compliance program in itself does not automatically result in fine reductions, although having one, but not acting in accordance with it, may actually lead to a fine increase. In the British Sugar case, for example, the European Commission used the undertaking’s failure to act in accordance with its own compliance program as an aggravating circumstance that justified substantially increasing the fine.<sup>13</sup>

## E. DE FACTO LEADERS

Since its creation in 1998, the NMa has had the power to sanction undertakings. After October 1, 2007, the NMa has also had the power to search private homes and sanction individuals who gave instructions to or exercised de facto leadership over violations committed by undertakings.<sup>14</sup> Within the context of investigations, this means that an individual can be imposed a fine for having given instructions to or exercised de facto leadership over a violation if the NMa is able to establish that an undertaking has committed a violation of competition regulations.

As evidenced by legal history, the ability to impose fines on those that gave instructions to or exercised de facto leadership over a violation is aimed at preventing executives, managers, and other staff members from violating material and formal provisions of the Dutch Competition Act.<sup>15</sup> Therefore, the phrase “exercised de facto leadership” does not solely relate to an undertaking’s top-level executives. In addition, multiple leaders may concurrently be obligated to end certain conduct. A leader is an individual that, whether or not officially employed with the undertaking, is able to exercise de facto leadership over the undertaking’s behavior. In the case of leadership, the leader, barring any exceptional circumstances, will be reasonably bound to intervene. Therefore, refraining from intervening may also be fineable.

A compliance program should be established, implemented, and monitored by the undertaking or trade association themselves.<sup>16</sup> This particular case was special because these individuals were working as supervisory board members at the undertaking, which is active in the Dutch newspaper industry. The fines were imposed for non-compliance with an instruction, which was a behavioral remedy imposed by the NMa in connection with an acquisition in 2000.

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The instruction had been to make sure that the undertaking, the Dutch media company Wegener, guaranteed the independence of two newspapers in the southwestern region of the Netherlands, thereby allowing the readers in that region to have freedom of choice. This independence would also prevent price increases and reader selection reductions. To that end, a board of supervisory directors was installed at each newspaper, and any link between the two was strictly forbidden. In order to further advance the newspapers’ independence, the board of Wegener and the supervisory directors signed an agreement committing themselves to set a course of action aimed at maintaining both newspapers’ mutual independence and existence. Both of these boards of supervisory directors were granted specific oversight roles, with approval rights to be focused on complying with the instructions. According to a recent NMa investigation, however, since 2002, neither newspaper has complied with the instruction. The

supervisory directors' executive role in connection with this non-compliance has resulted in them being fined along with the undertaking.

The individuals that exercised de facto leadership in the abovementioned case held positions of supervisory directors. Although it can be argued that supervisory directors, given their position's supervisory nature, are generally not in a position that would allow them to be considered de facto leaders, this case contained a number of unusual circumstances that considered these supervisory directors as such. First, these supervisory directors were given a special and—compared to regular supervisory directors—limited task, which was to exercise oversight on compliance with the behavioral remedy proposed by the undertaking in question. Second, they had signed an agreement with the undertaking to comply with the instruction.

The undertaking's fine is EUR 19 million, whereas the supervisory directors were each personally fined a total amount of EUR 1.3 million. Are these fines too high? No. In this case, too, the NMa first adopted the "high-trust" approach: you have our trust, but if you violate that trust, you will be fined severely.

## F. DISQUALIFICATION ORDER

The imposition of fines on individuals — next to the power of the NMa to impose fines on undertakings—is simply not enough to increase the deterrent effect due to potential indemnification or reimbursement of the fine by the undertaking. As previously mentioned, I am a staunch proponent of the instrument of disqualification orders under administrative law. I believe that introducing disqualification orders for violators of antitrust regulations is of considerable value to achieving maximum compliance with these regulations. As Ginsburg & Wright noted, imposing high fines on the undertaking alone will not lead to a significant reduction of cartel behavior. The introduction of disqualification orders might change this. The same conclusion is drawn in a consultation document by the OFT<sup>17</sup> in which it contemplates using disqualification orders in more cases than has been the case so far. The rationale is that individualized consequences to participants of antitrust violations are more effective than the consequences (of imposed fines) to the undertaking. Disqualification orders will send chills down the spines of individuals that gave instructions to cartels, and

their reputational damage will be severe—particularly if it involves people working at major international companies.

WITH REGARD TO SANCTION  
DECISIONS AIMED AT INDIVIDUALS,  
IT IS NMA POLICY TO  
ANONYMIZE THESE DECISIONS.

Concerning the reputational damage, I would like to add the following remark. With regard to sanction decisions aimed at individuals, it is NMa policy to anonymize these decisions. In any case, anonymization will always take place with respect to the name of the individual. In principle, that individual's position within the undertaking is also anonymized, but this may not

always be the case when taking the circumstances of the case into consideration, for example, in order to achieve the desired admonitory effect. In the NMa's communication and publications about such a case, this is obviously something that is taken into account. However, that does not take away the fact that publicity surrounding such a case, too, acts as an instrument for the NMa to highlight its objectives, which is realizing maximum compliance and boosting the perception of the chance of getting caught.

## IV. Criminal Enforcement

Enforcement of the Dutch Competition Act with regard to de facto leadership is currently based on administrative law. This may change in the future, meaning that competition law enforcement may be based on either administrative law or criminal law. Lawmakers are currently looking into the possibilities. Without a doubt, criminal prosecution (e.g. the mere threat of a prison sentence) has a major deterrent effect that may benefit the effective enforcement of competition regulations. But adding criminal elements to the current administrative enforcement may complicate this enforcement process, and could potentially even undermine effective enforcement.

Personally, I am not a proponent of introducing criminal law enforcement in the Dutch Competition Act. Administrative enforcement of the Competition Act has proven to be effective and efficient. The effectiveness of antitrust oversight may be jeopardized if an enforcement system is chosen in which undertakings and individuals are confronted with their conduct through either criminal law or administrative law. For example, which ministry would then be responsible for the enforcement of competition regulations? The Ministry of Economic Affairs—which is currently the case—or the Ministry of Justice? Also, does the Public Prosecution Service possess the required expertise to assess antitrust cases?

PERSONALLY, I AM NOT A  
PROPONENT OF INTRODUCING  
CRIMINAL LAW ENFORCEMENT IN  
THE DUTCH COMPETITION ACT.

Another uncertain aspect is the penalty itself. A criminal-law judge might very well be inclined to impose lower fines than the NMa in similar cases, given the Dutch sanction climate. If so, the Netherlands would risk being out of line with the European sanction climate. In addition, if an undertaking or natural person that filed a leniency request with the NMa ran the risk of being criminally prosecuted, it would undermine the leniency program. After all, there is no guarantee that the Public Prosecution Service and the judge would consider themselves bound to any grant of leniency.

Rather than introducing criminal enforcement, introducing the instrument of disqualification orders under administrative law may be another option (also see the foregoing). The introduction of such an instrument would surely help in

increasing the deterrent effect as well as in stimulating behavior that is in accordance with antitrust standards.

A major advantage of administrative enforcement of the Dutch Competition Act is that cases can be handled in flexible and innovative ways. In my opinion, emphasis in enforcement actions should not entirely be placed on the imposition of high fines. Enforcement actions as well as the imposition of fines serve the NMa's general objective, which is to stimulate behavior that is in accordance with antitrust standards.

## V. Fines as Deterrents

Media reports on sanction decisions as well as competition law literature often suggest that fines are too high. They question whether or not the emphasis of regulators on increasing fines in order to deter undertakings as much as possible is the right one, and they wonder whether this has merely triggered a race of who imposes the highest fines.

First of all, setting an appropriate fine for a violation of competition regulations is not an easy task, and it is certainly not a matter of mathematics. Fines are a last resort when the NMa believes that all other remedies will fail to yield the desired effect. The NMa will impose fines particularly in cases of a clear or continuous breach of standards, or in cases of conduct that frustrate the NMa's execution of its tasks. In almost all situations, the NMa can impose a fine of up to 10 percent of the undertaking's annual turnover. So, in effect, the maximum fine that the NMa can impose, in general, can be considerably high.

At the heart of this system lies the assumption that, if, for example, the prohibition of cartels is violated, the fine must be proportional to the relevant turnover, which is the turnover that the undertaking has generated through its illegal practices during the entire duration of the violation. This turnover is also known as the "affected turnover." The rationale is that undertakings only engage in illegal conduct because of the expected economic returns. As a proxy for these returns, 10 percent of the affected turnover is used as the so-called basic fine. However, it is my firm belief that the benefits that cartelists reap are not proportional to the damage that has been inflicted to the free market, which will often be many times greater. It is, however, virtually impossible to exactly quantify this damage, and it is nearly completely impossible to reclaim it through civil proceedings; for example, by a consumer claim.

A recent development is the issue of tax deductibility of fines imposed by the NMa. And although the NMa should actually not be involved, it is, however, in the NMa's interest that the discussion's outcome results in fines not being tax deductible, because the fines' intentions are to create a deterrent effect to realize general and special prevention. Dutch tax laws are clear that, when determining

profits, those costs and expenses related to administrative fines, or to fines imposed by an EU institution, should not be taken into account. Nevertheless, undertakings argue in favor of making NMa fines and Commission fines tax deductible, because those fines supposedly have a (partial) enrichment-depriving nature. After all, both the NMa and the Commission determine their fines using their Fining guidelines, which, in that respect, are similar, whereby the fine is systematically calculated on an estimation of the possible cartel profits.

Nevertheless, one of the Dutch courts ruled that fines imposed by the Commission have a ‘partially’ enrichment-depriving nature, and can thus be considered similar in nature to measures under tax law that *are* deductible.<sup>18</sup> Such a line of reasoning rapidly diminishes the deterrent effect of fines imposed by either the NMa or the Commission.

However, that ruling was reversed on appeal, and the Court of Amsterdam ruled—after the Commission had intervened as *amicus curiae*—that the relevant legal text in Dutch tax law is crystal clear on this matter: Fines imposed by the Commission and the NMa are not tax deductible.<sup>19</sup> The Supreme Court of the Netherlands—the highest judicial body in the Netherlands—still needs to comment on this issue. The NMa will closely follow the Supreme Court in this matter, because at stake is a deterrent that can be used for both general and special prevention.

## VI. In Conclusion

The NMa in recent years has battled violators of the Dutch Competition Act in order to get rid of the Netherlands’ reputation of “cartel paradise.” Administrative fines as sanctioning instruments remain essential in that battle. Considering the Netherlands’ past, it is and continues to be necessary in the Netherlands to fine undertakings for violating the Dutch Competition Act.

Besides imposing fines on undertakings, the NMa will increasingly use its power to fine individuals who gave instructions to or exercised de facto leadership over violations. When fining these kinds of individuals, there is a risk that the undertaking with which they are employed will reimburse those fines, or that indemnification becomes widespread. That is why I argue for the introduction of disqualification orders, so that those who gave instructions to cartels are personally hit, which should significantly increase the deterrent effect of competition regulations.

The importance of antitrust oversight justifies strict actions to be taken by the regulator. However, the regulator, as part of his executive power, must have the

THE NMA IN RECENT YEARS HAS BATTLED VIOLATORS OF THE DUTCH COMPETITION ACT IN ORDER TO GET RID OF THE NETHERLANDS’ REPUTATION OF “CARTEL PARADISE.”

necessary freedom to use its instruments and powers. In this respect, a regulator's work is more of an Art than a Craft—as I already mentioned at the beginning of this article—and the regulator thus has a hand in the legal state. ▼

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- 1 See also 2006 NMa Annual Report, p. 18.
  - 2 When the Dutch Competition Act came into effect in 1998, undertakings were given the opportunity, under a transitional program, to notify the NMa of the then existing cooperation agreements concluded prior to April 1, 1998, and have them tested against the new law. The NMa received 1,040 exemption requests, much more than the expected 350. Moreover, the NMa received exemption requests for cooperation agreements that were concluded after April 1, 1998.
  - 3 The Parliamentary Inquiry Committee into the Dutch Construction Industry ruled that the NMa:  

... apparently [took] a somewhat wait-and-see attitude and [was] led by the Dutch Public Prosecution Service. The NMa let the Public Prosecution Service take control far too easily. The Parliamentary Inquiry Committee into the Dutch Construction Industry is of the opinion that the fact that the shadow bookkeeping system concerned the period of 1986 until the end of 1998 should have only played a minor role in this. After all, the fact that the NMa is only authorized to take action with regard to irregularities that have taken place after January 1, 1998, does not take away the fact that knowledge of this bookkeeping system could have given the NMa a good idea of the system of irregularities. Armed with such information, the NMa would have had a better starting position when carrying out investigations into the construction industry. Earlier investigations carried out by the Dutch Economic Investigation Service (ECD) already confirmed that there had been indications of price-fixing and market-sharing systems within the construction industry, of which whistleblower Mr. Bos already spoke. In conclusion, the Parliamentary Inquiry Committee into the Dutch Construction Industry believes that a more active role on the NMa's part would have been more appropriate.

Parliamentary Papers II, session 2002-2003, 28 244, no. 5-6, p. 157.
  - 4 The NMa was thus helped in the large-scale investigation into the Dutch construction industry by the public disclosure of a shadow bookkeeping system in the industry, done so by a whistleblower.
  - 5 Under the term "modernization process" is understood, among other things, to include the change in application where the monopoly of applying Article 81, paragraph 3, EC Treaty, which used to be applied solely by the European Commission., was terminated. On the basis of rulings, it had to indicate whether the exception to the prohibition of cartels, laid down therein, was under discussion in concrete cases. Today, Article 81, paragraph 3, EC Treaty, operates directly, and every undertaking or association of undertakings and every judge or regulator must determine for itself/themselves whether the conditions are met for overriding the prohibition of cartels.
  - 6 Policy rules of the Minister of Economic Affairs, containing guidelines on the imposition of administrative fines by the NMa 2009, Government Gazette. 2009, no. 14079.
  - 7 The Ministry of Economic Affairs is currently drafting a law which should create the possibility of criminal enforcement of competition rules.
  - 8 Dutch Trade and Industry Appeals Tribunal, dated February 9, 2006, AWB 03/918, Fortis Bank (Nederland) N.V. and Dutch Authority for the Financial Markets.
  - 9 Parliamentary Papers II 2006-2007, 31 055, no. 1-2, Antitrust oversight by the NMa.

- 10 Parliamentary Papers II 2006-2007, 31 055, no. 1-2, Antitrust oversight by the NMa, p. 14.
- 11 For example, see District Court of Rotterdam, dated August 7, 2003, MEDED 02/259, Texaco.
- 12 District Court of The Hague, Janssen de Jong Groep B.V. and others v. State of the Netherlands, 33760 7/KG ZA 09-616.
- 13 Decision of the Commission of October 14, 1998, case no. IV/F-3/33.78, OJ L 76/1-66, ov 208 ("British Sugar acted in violation of the clear terms of its compliance program"). Also see ECJ April 29, 2004, British Sugar v. Commission, case C-359/01P.
- 14 Act of June 28, 2007, containing an amendment to the Dutch Competition Act as a result of the evaluation thereof, Government Gazette 2007, 284.
- 15 Parliamentary Papers II 2004-2005, 30 071, no. 3, p.8.
- 16 Decision dated July 14, 2010 by the NMa in case 1528 / Wegener. This decision (in Dutch) can be downloaded from [www.nmanet.nl](http://www.nmanet.nl).
- 17 The consultation document can be downloaded at [http://www.offt.gov.uk/shared\\_offt/consultations/oft1111con.pdf](http://www.offt.gov.uk/shared_offt/consultations/oft1111con.pdf). The OFT recently announced in what way it will exercise its power to impose a disqualification order. That document can be downloaded at [http://www.offt.gov.uk/shared\\_offt/business\\_leaflets/enterprise\\_act/oft510.pdf](http://www.offt.gov.uk/shared_offt/business_leaflets/enterprise_act/oft510.pdf).
- 18 Decision of District Court of Haarlem dated May 22, 2006, AWB 05/1452, X. B.V. and Dutch Tax Administration. The same court has also issued a decision ruling that fines imposed by the NMa are not tax deductible (District Court of Haarlem, dated October 3, 2008, AWB 08/493, X and Dutch Tax Administration).
- 19 Ruling of Court of Amsterdam, dated March 11, 2010, 06/00252, Dutch Tax Administration and X. B.V. and ruling of Court of Amsterdam, dated March 11, 2010, 08/01180, X. B.V.

# Improving Deterrence of Hard-Core Cartels

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*Mariana Tavares de Araujo\**

The purpose of this paper is to discuss Ginsburg's & Wright's proposal to enhance deterrence of hard-core cartels by shifting sanctions away from corporations towards perpetrators and other responsible individuals; and by specifically including the possibility of debarment as an option of sanction against corporate officers and directors. It is organized as follows. Section II presents data that supports policy decisions by antitrust authorities of prioritizing cartel enforcement. Section III analyzes why enhancing detection methods and adopting severe sanctions against offenders are crucial elements to deter hard-core cartels; I also describe Ginsburg & Wright's proposal and other views on this issue. Section IV examines Brazil's policy on hard-core cartel enforcement *vis a vis* Ginsburg's & Wright's proposal. Section V concludes.

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## I. Introduction

The purpose of this paper is to discuss Ginsburg's & Wright's proposal to enhance deterrence of hard-core cartels by shifting sanctions away from corporations towards perpetrators and other responsible individuals; and by specifically including the possibility of debarment as an option of sanction against corporate officers and directors. It is organized as follows. Section II presents data that supports policy decisions by antitrust authorities of prioritizing cartel enforcement. Section III analyzes why enhancing detection methods and adopting severe sanctions against offenders are crucial elements to deter hard-core cartels; I also describe Ginsburg & Wright's proposal and other views on this issue. Section IV examines Brazil's policy on hard-core cartel enforcement *vis a vis* Ginsburg's & Wright's proposal. Section V concludes.

## II. The Harmful Effects of Hard-Core Cartels

The Organization for Economic Co-operation and Development has stated that hard-core cartels are “the most egregious violations of competition law as they seriously harm consumers by raising prices and restricting output, without any efficiency justifications. Such agreements among competitors result in inefficient markets, where goods and services are unavailable for some consumers, and others are forced to pay higher prices but for the cartel. In addition, by artificially insulating themselves from the pressures that derive from competitive marketplaces, cartel members have limited incentives to control costs and to innovate.

The harmful effects caused by cartels are difficult to quantify, since it would be necessary to compare what happened in the market while the cartel operated to a hypothetical situation where the firms in the market competed honestly. There are practical obstacles to performing this comparison and usually competition authorities are not required by law to undergo this exercise before sanctions are imposed. Cartel fines generally are not determined based on actual harm, but instead authorities look at the volume of commerce, a firm's turnover, or affected sales of the cartelized product or service and use a proxy estimate (i.e., a set percentage) for the actual harm. Thus, there is not a significant amount of data regarding the quantification of harm in hard-core cartel cases.

The Competition Committee of the OECD conducted one of the available studies on the harm from hard-core cartels, based on a survey of cases conducted by its members, and concluded that 16 cartel cases investigated between 1996 and 2000 had cost consumers around the world over U.S. \$55 billion.<sup>1</sup> The mark-

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ups differed considerably but, on average, prices in a market where a cartel operated were 10 to 20 percent higher than they would have been in absence of an agreement. Still, in some cases, the mark-up reached as much as 50 percent over what would have been charged had there not been a cartel. Another study conducted by Levenstein & Suslow concluded that, from 1995 to 2005, overcharges by international cartels reached as much as U.S. \$500 billion.<sup>2</sup> It follows from both studies that cartels around the world annually harm consumers in a number of billion U.S. dollars.

Strong enforcement against hard-core cartels is thus a common goal shared by a great number of competition authorities around the world; these have, in the last two decades, adopted leniency programs, criminalized cartel conduct, imposed higher sanctions against participants, and increasingly cooperated with each other on the path towards enhanced deterrence.<sup>3</sup>

### III. The Two Elements of Deterrence: Effective Detection and Optimal Sanctions

Jurisdictions that actively pursue anti-cartel enforcement face a common challenge that is, in fact, twofold: first, to heighten the fear of detection through the

JURISDICTIONS THAT ACTIVELY PURSUE ANTI-CARTEL ENFORCEMENT FACE A COMMON CHALLENGE THAT IS, IN FACT, TWOFOLD: FIRST, TO HEIGHTEN THE FEAR OF DETECTION THROUGH THE USE OF AN ARSENAL OF DIFFERENT INVESTIGATION METHODS; AND, SECOND AND EQUALLY IMPORTANT, TO INSTITUTE THE THREAT OF SEVERE AND WELL-TARGETED SANCTIONS THAT WILL ENHANCE DETERRENCE.

use of an arsenal of different investigation methods; and, second and equally important, to institute the threat of severe and well-targeted sanctions that will enhance deterrence.

Parties to hard-core cartels go to great lengths to hide their behavior and indeed, in response to recent enhanced enforcement in several countries, are using increasingly elaborate strategies to remain secretive.<sup>4</sup> Competition authorities have thus strived to enhance their ability to detect cartel behavior. A number of agencies resort to sophisticated investigative techniques such as dawn raids and wire-tapping, very often in cooperation with the police and prosecutors of these countries and also with each other.<sup>5</sup>

In the last two decades, a great number of jurisdictions have adopted leniency or amnesty programs for cartel conduct. These programs allow competition authorities to grant immunity of applicable sanctions to one (or more) of the co-conspirators, in exchange for cooperation that will lead to the prosecution and sanctioning of the other parties to the cartel. Leniency applicants provide authorities access to direct evidence from inside the cartel at a much lower cost than if other investigative techniques were used, and also act as a deterrence to

parties considering joining or forming a conspiracy.<sup>6</sup> When coupled with the risk of detection and threat of severe sanctions, leniency programs introduce an ingredient that will contribute to the instability of the cartel by providing a powerful incentive to break ranks from the cartel and report the wrongdoing.<sup>7</sup>

Leniency programs become an attractive option as long as conspirators realize that the chances of being detected are high. If that happens, severe sanctions will be imposed. However, without strong enforcement actions that signal to cartel members that their behavior will not go undetected, it is unlikely that any conspirator will spontaneously come forward to confess and cooperate. Similarly the incentives to leave the cartel are diminished if the gains accrued through the agreement are superior to the sanctions to which the cartel member will be exposed if caught. And finally, leniency applications suppose a high degree of trust between the authorities and the candidate to the program, as well as their counsel. Therefore, as in any trust-based relationship, transparency and predictability of the program rules are paramount to encourage parties to confess and to turn against the other co-conspirators.<sup>8</sup>

Currently, over 50 jurisdictions have leniency programs in place. In the United States, companies have been fined over U.S. \$5 billion dollars for antitrust crimes since 1996, with over 90 percent related to investigations assisted by leniency applicants.<sup>9</sup> Enforcement experience confirms that having an effective leniency program in place is an important step for competition agencies to encourage deterrence. Nonetheless, despite the proliferation of leniency programs and the enhanced cartel enforcement around the globe, authors have argued that cartels are still, overall, under-deterred.<sup>10</sup>

By agreeing not to compete, cartel members are able to set prices and accrue profits substantially above the competitive level. To discourage what is clearly a very appealing business practice, the penalty has to be equally unappealing. An additional aspect to be considered is that, despite the recent increase in enforcement around the world, evidence suggests that recidivism among cartelists is not infrequent. Stock price movements following indictment for price-fixing also indicate under-deterrence; usually share prices fall significantly when charges are pressed, but the overwhelming majority returns to pre-indictment levels within one year.<sup>11</sup> Moreover, taking into account the secretive nature of collusion and the lengths cartelists go to in order to conceal their conduct, the detection of cartel conduct will always remain a challenge for authorities, and conspirators are well aware of that. Therefore, achieving deterrence requires strong enforcement coupled with severe sanctions that outweigh the potential rewards of participating in a cartel; not just merely as routine business costs.

TO DISCOURAGE WHAT IS CLEARLY A VERY APPEALING BUSINESS PRACTICE, THE PENALTY HAS TO BE EQUALLY UNAPPEALING.

Sanctions form a relevant piece of any regulatory system. In addition to providing a deterrent, they act as catalysts to ensure that laws and regulations are complied with and also signal that non-compliance will not be tolerated. A number of different theories have been developed on what is the optimal sanction or, better said, which is the optimal combination of sanctions that will effectively discourage collusive behavior. Some jurisdictions have opted for making enterprises the exclusive targets of enforcement and seek optimal deterrence of cartel activity through adequate administrative sanctions alone.<sup>12</sup> In a recent article, Professors Lande & Davis<sup>13</sup> reviewed data regarding criminal enforcement *vis a vis* private litigation in the United States and concluded that the latter, by exposing corporations to very high damage payments, has played a crucial role in deterrence.

Other authors have argued that an optimal sanction or mix of sanctions depends on ensuring that the individuals who fix prices on the corporations' behalf shoulder a substantial part of the total sanction.<sup>14</sup> However, a relevant point has been raised that if the individuals are exclusively sanctioned through administrative or criminal fines, it is a challenge to prevent companies from indemnifying them, either directly or indirectly, against pecuniary damages.<sup>15</sup> Since this would completely undermine the purpose of the penalty, the most effective sanction against individuals might be imprisonment.<sup>16</sup> Moreover, there is also the risk that these fines are passed on to consumers, as corporations may choose to recoup those financial losses through price increases.

Ginsburg & Wright indicate that, in addition to the two potential targets of antitrust sanctions—the individuals and the corporations—it is also relevant to consider that there are two sources of these sanctions: law enforcement agencies and the market. Law enforcement agencies impose the available sanctions in the different jurisdictions against both targets; the market also imposes reputational penalties. Ginsburg & Wright argue that two fundamental principles should guide optimal sanctions for cartel activities: the first is aimed at calibrating sanctions to achieve deterrence; and the second focuses on the adequate mix of sanctions allocated between the enterprise and the individual(s) involved in the cartel. The first principle establishes that “(...) the total sanction must be great enough, and no greater than necessary, to take the profit out of price-fixing.”<sup>17</sup> And, according to the second principle, “the individuals responsible for the cartel activity, whether they are engaged in, complicit with, or negligent in preventing the price-fixing scheme, should be given a sufficient disincentive to discourage them from engaging in that activity.”<sup>18</sup>

The authors also point out that, taking into consideration the data available, there is no indication that increasing fines against firms will enhance deterrence. Therefore, they propose to reform antitrust sanctions by both shifting the emphasis on sanctions against corporations to those directed at individuals and, including as an alternative sanction, debarment of individuals from those positions that enable them to violate competition laws or allow subordinates to do

so. The two main aspects of their proposal are the overall level of deterrence and the combination, instead of the level, of sanctions.

Holding perpetrators accountable and tailoring the optimal mix of sanctions through a combination of administrative and criminal penalties are two core elements of Brazil's anti-cartel enforcement.

## IV. Brazil's Anti-Cartel Enforcement: Our Path Towards Deterrence

Brazil's Competition Policy System ("BCPS") is composed of three agencies: the Council for Economic Defense ("CADE"), an administrative tribunal that adjudicates both merger and conduct cases; and two investigative and advisory agencies. These are, respectively, the Secretary for Economic Monitoring of the Ministry of Finance ("SEAE"), in charge of merger review, and the Secretary of Economic Law of the Ministry of Justice ("SDE"), responsible for anticompetitive conduct investigation, including cartels. Both secretaries have legal mandates to perform both merger analysis and conduct investigations and may, at their discretion, issue complementary reports to ones issued by the other Secretary. However, in the past five years, the Secretaries' policy has been to forego this prerogative. Both Secretaries' reports to CADE are non-binding.

BRAZIL HAS A DUAL ENFORCEMENT SYSTEM—CARTELS ARE BOTH AN ADMINISTRATIVE INFRINGEMENT AND A CRIME.

Brazil has a dual enforcement system—cartels are both an administrative infringement and a crime. State and federal prosecutors are in charge of criminal prosecution and, together with the criminal courts, enforce Law 8.137/1990, the statute that establishes cartel activities as a crime. At the administrative level, the applicable statute is Law 8.884/1994 and the prosecutorial role is performed by the SDE.

Since 2003, Brazilian antitrust authorities have promoted a hierarchy of antitrust enforcement that places hard-core cartel prosecution as their top priority and, as with other antitrust authorities across the world, have had to focus on developing better detection methods and increasing the sanctions that had previously been imposed against offenders. Their choice was to create an integrated system where the administrative authorities in the federal government and the criminal authorities at the federal and state levels work as a team, so as to utilize the best of both systems and improve deterrence.

Brazil's integrated system has three main and equally important purposes. The first is to enhance the detection abilities of the antitrust authority, taking advantage of the complementary expertise in the administrative and criminal spheres, as well as of the resources of police and prosecutors around the Brazilian territories. The second is to secure convictions and jail sentences for executives who do

not apply to Brazil's leniency program, in addition to collecting the administrative fines applicable to corporations and individuals under Law 8.884/1994. And the third purpose is to increase legal certainty regarding the leniency program.<sup>19</sup>

During the first years after Brazil's anti-cartel enforcement was launched, criminal authorities played an accessory role that mostly consisted in providing technical assistance during dawn raids and executing leniency agreements with the SDE. When criminal prosecution followed, until 2007 at least, in the vast majority of the cases it happened as a consequence of enforcement at the administrative level. These first steps of integration boosted SDE's and CADE's reputations as tough enforcers and made available a variety of investigative tools that had not been used before, thereby strengthening the cases prosecuted at the administrative level. This, in turn, had three important inter-related consequences: first, CADE began imposing higher sanctions due to the existence of direct evidence of collusion; second, it increased litigation during and after the adminis-

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trative prosecution along with the instances when CADE's decisions and the SDE's administrative acts were upheld by the courts; and third, it attracted a greater number of leniency applicants.

The landmark case that occurred during this first phase of Brazil's anti-cartel enforcement was the crushed-rock cartel investigation. It was the first time that administrative authorities, in close cooperation with criminal authorities, executed an antitrust dawn raid.<sup>20</sup> There was intense cooperation between SDE and the Public Prosecutor's Office of the State of Sao Paulo throughout the case and, as a result, criminal proceedings were also filed before the Judiciary. The proceedings led to joint interviews of witnesses by SDE and the police as well as criminal indictments of several individuals. Ultimately, however, all the criminal proceedings were settled with the payment of fines.

This case was an important step as it was the first time that the Public Prosecutors from Sao Paulo argued a cartel case before the criminal court, but the fact is that the parties did not face severe criminal consequences for having taken part in the cartel. On the other hand, at the administrative level, using the SDE's report as a basis, CADE fined the defendant companies along with the trade association in amounts ranging from 15 to 20 percent of their 2001 gross revenues, depending on the degree of their involvement. Some of the parties challenged CADE's final ruling before the Judiciary; so far all the judicial decisions have unanimously upheld the fines imposed by CADE. In addition, at the request of CADE's legal service, the judges demanded a judicial deposit from the parties in the amount of the administrative fine, before appealing to the courts.

The dynamics of the cooperation between administrative and criminal authorities and of the roles performed by each during the first years of Brazil's anti-car-

tel enforcement are well illustrated by the crushed-rock cartel investigation and, although coordination has been at the crux of Brazil's anti-cartel enforcement from the outset, in this case it served a different purpose. The numerous dawn raids that have been run since 2003; the growing number of leniency applicants; and the hefty fines imposed by CADE have been decisive in attracting attention from criminal authorities from the different states of the country and encouraging anti-cartel enforcement to be treated as a relevant matter for criminal enforcement. This approach has evolved significantly in the recent years, and the integration between criminal and administrative authorities has resulted in the detection of numerous domestic and international cartels, through investigations initiated either by the SDE, or by police or prosecutors' offices around the country.<sup>21</sup>

In 2008 the Sao Paulo State Prosecutor's Office created a special unit to investigate cartels and to co-operate with the SDE in joint criminal and administrative investigations. This arrangement became a template for co-operation between SDE and other state prosecutors; currently there are agreements between SDE and state prosecutors in 23 states, in addition to a separate agreement with the federal prosecutors.<sup>22</sup> These protocols culminated in the National Anti-Cartel Strategy ("ENACC"), a formal network to coordinate a plan of activities between criminal and administrative authorities, with the purpose of ensuring synergy and organization in anti-cartel enforcement around the country.<sup>23</sup> Deeper integration became indispensable as enforcement changed the scale of activity, and also as criminal authorities began performing a leading role instead of an accessory one.

There are numerous synergies that can be explored within a dual enforcement system, but there are also significant challenges that derive from the fact that administrative and criminal authorities have different backgrounds and, on occasion, may have different priorities. It is quite natural for an antitrust authority to set anti-cartel enforcement as a top priority, but not as natural for criminal authorities that usually are involved with the investigation of other serious crimes to do the same. And even when that happens, and specialized units are created, it does not necessarily follow that they will master the subject as well as antitrust authorities. This has several consequences as, for example, which penalties will be sought or what will be required to settle a case. Brazil's anti-cartel enforcement is moving towards a new phase, where criminal authorities will take the lead and administrative authorities will increasingly play a coordination role. This is a work in progress and, during this transition, there will be some discomfort, which is natural and part of the growth process. The results ahead seem promising, but success depends on increased integration and coordination.

THERE ARE NUMEROUS SYNERGIES THAT CAN BE EXPLORED WITHIN A DUAL ENFORCEMENT SYSTEM, BUT THERE ARE ALSO SIGNIFICANT CHALLENGES THAT DERIVE FROM THE FACT THAT ADMINISTRATIVE AND CRIMINAL AUTHORITIES HAVE DIFFERENT BACKGROUNDS AND, ON OCCASION, MAY HAVE DIFFERENT PRIORITIES.

CADE has also demonstrated its firm commitment to severely punishing cartels. In the recent past, fines imposed against firms sanctioned for hard-core cartels have frequently been in excess of 20 percent of their turnover in the year prior to the beginning of the investigation.<sup>24</sup> CADE has also coupled administrative fines with other available sanctions in the antitrust statute, such as prohibiting corporations that were found guilty of bid-rigging from bidding on government contracts for certain periods of time, as well as publishing ads in major Brazilian newspapers informing the public of the sanctions imposed by CADE for participating in a cartel.<sup>25</sup> But beyond that, and although CADE has severely sanctioned individuals as well, Brazil's policy on cartel enforcement operates under the premise that enhanced deterrence is possible if the rigorous criminal penalties provided by law (from 2–5 years jail terms<sup>26</sup>) are sought. Criminal and administrative authorities reaffirmed this understanding in a document named *Brasilia Declaration*, which instituted the ENACC.<sup>27</sup>

Many of the criminal authorities who take part in the ENACC are also in charge of prosecuting other white-collar crimes. This allows those developing strategy for cartel enforcement to learn from positive experiences in different areas such as money laundering and insider trading. Following existing examples in other areas, the ENACC issued two recommendations directed to Brazil's Security and Exchange Commission (CVM), with the purpose of preventing wrongful conduct and improving transparency to stockholders.<sup>28</sup> The first recommendation requires that all listed companies adopt antitrust compliance programs; and the second requires that companies give notice to stockholders when enforcement action is initiated for price-fixing and other types of collusive behavior.

Brazil's administrative and criminal authorities in charge of cartel enforcement share the view that stricter penalties than those that have been imposed so far are necessary to improve deterrence; but also recognize the importance of shifting sanctions away from corporations towards individuals. Still, although there have been recent decisions from criminal courts sentencing executives found guilty of price-fixing to jail terms, and there are firm commitments from the parties to the ENACC to enforce the criminal statute more severely, there are certainly costs for society to take into account when considering these sanctions as an option in every case.

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As in other white-collar crimes, jail sentences tarnish the reputation of individuals who are found guilty of participating in cartels, which is an important aspect of such penalties. Adding the possibility of debarring individuals responsible for price-fixing in publicly traded companies to the existing sanction mix has two important features. First, as it has a strong reputational ingredient, it will enhance deterrence. Second, as it will ban individuals from occupy-

In this context, Ginsburg & Wright's proposal is welcome. As in other white-collar crimes, jail sentences tarnish the reputation of individuals who are found guilty of participating in cartels,

which is an important aspect of such penalties. Adding the possibility of debarring individuals responsible for price-fixing in publicly traded companies to the existing sanction mix has two important features. First, as it has a strong reputational ingredient, it will enhance deterrence. Second, as it will ban individuals from occupy-

ing positions from which they could again violate or negligently enable their subordinates to violate the antitrust laws, it will prevent recidivism as well.

Pursuant to article 11 of Law 6.385/76,<sup>29</sup> Brazil's Securities and Exchange Commission ("CVM") has statutory authority to debar individuals found guilty of serious infringements. Internal resolutions set out the practices that are considered serious infringements by the regulator and that may be punished by debarment. This is an important precedent under Brazil's legal system, i.e. debarring directors and executives found culpable of white-collar crimes, in combination with or as an alternative to jail sentences. The possibility of including debarment of individuals found guilty of price-fixing from occupying certain positions in publicly traded companies in Brazil still depends on amending Law 8.884/94,<sup>30</sup> as the CVM's statutory authority is circumscribed to the infringements of its regulations, of Law 6.385/76, of Law 6.404/76,<sup>31</sup> and of other legal provisions regarding practices over which it has jurisdiction. As price-fixing, market division, bid-rigging, and other types of collusive behavior fall outside this category, it will therefore be necessary that debarment be included as a possible sanction under Law 8.884/94, to be imposed by CADE when adjudicating a cartel case.<sup>32</sup>

## V. Conclusions

Administrative enforcement has been the key driver of Brazil's anti-cartel enforcement until very recently, and sanctions in the past were mostly directed towards corporations. Since 2003 though, the landscape has changed; culpable individuals are increasingly being held accountable, and a continuous effort has been made to enlarge the scope of available sanctions against offenders.

Effective cartel enforcement in Brazil is less than a decade old and it would be premature to reach definitive conclusions regarding deterrence. Nonetheless, empirical evidence on the number of search and seizure warrants served, on individuals sentenced to prison terms, as well as on the increasing number of leniency applications and settlements<sup>33</sup> allows the conclusion that both requirements for deterrence of cartel activity—heightened fear of detection and threat of severe sanctions—were positively affected through the integration of criminal and administrative authorities. Making available new sanctions that give sufficient disincentive to executives and other officers from engaging in collusion; as well as coordinating the various corporate and individual sanctions to achieve the optimal total sanction, will set Brazil on a strong path towards deterrence. ▼

CULPABLE INDIVIDUALS ARE INCREASINGLY BEING HELD ACCOUNTABLE, AND A CONTINUOUS EFFORT HAS BEEN MADE TO ENLARGE THE SCOPE OF AVAILABLE SANCTIONS AGAINST OFFENDERS.

- 1 Organization for Economic Co-operation and Development (OECD), *Fighting Hard Core Cartels: Harm, Effective Sanctions and Leniency Programs (2002)*, available at <http://www.oecd.org/dataoecd/41/44/1841891.pdf>.
- 2 See, e.g., Michal S. Gal, *The Globalization of Antitrust*; Margaret Levenstein & Valerie Y. Suslow, *Contemporary international cartels and developing countries: Economic Effects and Implications for Competition Policy* 71 ANTITRUST L. J. 801 (2004).
- 3 Countries such as Chile, Czech Republic, Greece, Mexico, the Netherlands, New Zealand, Australia, Russia, and South Africa have recently criminalized cartel conduct or are considering it.
- 4 The OECD report (*supra* note 1) provided a number of examples of these strategies: Conspirators in one case, faced with a document demand from the competition authority, loaded two automobiles with bid files and took them to the country, where it took a full day to burn them in “four huge bonfires. . . .” In another case, the conspirators carefully controlled the creation and retention of incriminating documents by, among other things, conducting internal audits to verify that such documents no longer existed. When it was felt necessary to keep certain spreadsheets showing allocations of business among the conspirators, the files were copied onto computer disks and hidden in the eaves of one employee’s grandmother’s house. In another case, internal documents from one of the defendants revealed an unofficial motto of the company: “Our competitors are our friends, our customers are the enemy.”
- 5 In response to a questionnaire circulated by Sub-Group 1 of the Cartel Working Group of the International Competition Network (“ICN”), 43 out of the 50 responding jurisdictions declared have adopted increased penalties for cartels; 35 have implemented amnesty or leniency provisions; and 35 have gained new investigative powers. See, Scott Hammond, Deputy Assistant Att’y General for Crim. Enforcement, Antitrust Div., Depart. of Justice, Presentation at The 9<sup>th</sup> Annual Conference of the International Competition Network (ICN), Trends and Developments in Cartel Enforcement (April, 27-29, 2010) available at <http://www.internacionalcompetitionnetwork.org/library.aspx?search=&group=2&type=0&workshop=0&page=2>.
- 6 See International Competition Network (ICN), *Anti-cartel Enforcement Manual, How to Implement an Effective Leniency Program* (April 2009).
- 7 See Gregory J. Werden, *Sanctioning Cartel Activity: Let the Punishment Fit the Crime*, EUR. COMPETITION J. (March 2009); and Scott Hammond, Deputy Assistant Att’y General for Crim. Enforcement, Antitrust Div., Depart. of Justice, Presentation at The 24<sup>th</sup> Annual National Institute on White Collar Crime, The Evolution of Criminal Antitrust Enforcement Over the Last Two Decades (Feb. 25, 2010), available at <http://www.justice.gov/atr/public/speeches/255515.htm>:

Consider the “empty seat at the table” scenario. Five members of a cartel are scheduled to hold an emergency meeting, but when the meeting starts there is an empty seat at the table. One of the conspirators has unexpectedly not arrived at the meeting and is not returning phone calls. The cartel members at the meeting start to get nervous. Has the missing cartel member had a change of heart and abandoned the cartel? Has he already reported the others to the government? Or did he just miss his plane? In this environment, with the risk of detection and resulting sanctions so high, can the conspirators afford to trust one another? Each member of a cartel knows that any one of its co-conspirators can report the others in exchange for total immunity—a decision that will seal their fate. Imagine the vulnerability of cartel members in that position asking, “Can I really trust my competitors to look out for my best interests?” The answer to this question leads them directly to the prosecutor’s door.

- 8 See ICN, *supra* note 6.
- 9 Hammond, *supra* note 7.

- 10 See, e.g., Robert H. Lande, & Joshua P. Davis, *Comparative Deterrence from Private Enforcement and Criminal Enforcement of the U.S. Antitrust Laws* (March 2010); John M. Connor, & Yuliya Bolotova, *Cartel Sanctions: An Empirical Analysis* (April 2008); Michael S. Gal, *Free Movement of Judgments: Increasing Deterrence of International Cartels Though Jurisdictional Reliance* (October 2008); Douglas H. Ginsburg & Joshua D. Wright, *Antitrust Sanctions* (June 2010); Gregory J. Werden, *Sanctioning Cartel Activity: Let the Punishment Fit the Crime* (March 2009).
- 11 See Ginsburg & Wright, *id.*, page 21.
- 12 The European Union is one of the jurisdictions that have severely sanctioned hard-core cartels exclusively through administrative sanctions. Between the years 2005 and 2009 the sanctions against hard-core cartels, adjusted for court judgments, have been in excess of EUR 9.75 billion. See <http://ec.europa.eu/competition/cartels/statistics/statistics.pdf> (last visited September 5th, 2010).
- 13 Lande & Davis, *supra* note 10.
- 14 See Werden, *supra* note 7 and Ginsburg & Wright, *supra* note 10.
- 15 See contributions from Australia, the United States, and the United Kingdom to the OECD roundtable on *Cartel Sanctions Against Individuals*, October, 2003. Available at [www.oecd.org/dataoecd/61/46/34306028.pdf](http://www.oecd.org/dataoecd/61/46/34306028.pdf). Last visited August, 25th, 2010.
- 16 On the other hand, criminal law authors like Luigi Ferrajoli, Winfried Hassemer, Eugenio Raul Zaffaroni, and Alessandro Baratta have argued that the states' intervention through criminal penalties should be limited in scope—and therefore the institution of new categories of crimes should be avoided, as well as increasing intensity, so that prison terms in particular should only be imposed as punishment for the most harmful crimes.
- 17 See Ginsburg & Wright, *supra* note 10, at 3.
- 18 *Id.*, at 4.
- 19 Brazil's leniency program shelters both administrative and criminal sanctions from the directors and managers of the cooperating firm if the individuals sign the agreement and fulfill the requirements provided in the law. The SDE is the antitrust agency with power to negotiate a leniency agreement. In the beginning, Brazil's Leniency Program received some criticism as some claimed that the SDE, as an administrative agency, could not ensure criminal immunity. The fact is that the law creates a legal fiction and provides for the automatic extinction of criminal and administrative liability at the time CADE verifies that the leniency applicant fulfilled all his obligations. However, to avoid any questioning and, although it is not a legal requirement, the SDE may involve the Prosecutors Office (state and federal, depending on the case) in the execution of the leniency letter.
- 20 In 2002, SDE received an anonymous tip of an alleged cartel involving crushed rock companies in São Paulo. The companies took part in a cartel to fix prices, allocate customers, restrict production, and rig public auctions in the market for crushed rock, an essential raw material in the civil construction industry. The companies also used sophisticated software in order to steer sales and check compliance with the agreement. In July 2003, an administrative proceeding was initiated against 21 companies and one trade association in order to investigate the alleged cartel violations. The anonymous tip provided the authorities with plenty of information which enabled SDE and the Public Prosecutors to run the first antitrust dawn raid in Brazil's history. The procedure was conducted at the offices of the industry association Sindipedras. Seized evidence showed that there was, in fact, an illegal and sophisticated cartel in place.
- 21 Due to enhanced cooperation, the number of search warrants served—and consequently the quality of the evidence presented in cartel cases—has significantly increased: From 2003 to 2006, 30 warrants were served, while from 2007 to June 2010, more than 230 warrants were served. To date, more

than 250 executives are facing criminal proceedings, over 40 executives have been sentenced to serve jail time, and another 19 executives have been sentenced to pay criminal fines for their participation in cartel conduct. One important investigation that resulted from a more active role played by the criminal authorities was in the fuel retail sector, in the Northern region of Brazil. In May 2007, SDE, together with SEAE, the Federal Police, and the State Prosecutors of the State of Paraíba launched a dawn raid in Joao Pessoa and Recife to obtain evidence of a cartel in this sector. The operation involved 190 agents who searched 26 different places and served 16 prison warrants. The dawn raid exercises were called "Pact 274," named after the price allegedly agreed for the liter of gasoline (BRL 2,74). The positive impact to the economy in this case was felt immediately after raids, as the average price of the type C gasoline in Joao Pessoa went from BRL 2,74/litre in April 2007 to BRL 2,37/litre in December the same year. Considering the price reduction and the increase in demand, consumer savings can be estimated up to BRL 32 million during the eight months after the raid. Stronger integration has also been crucial to detect international cartels that allegedly affected the Brazilian market, as in the compressors cartel investigation that was initiated as the result of a leniency agreement with SDE. Simultaneous dawn raids were conducted in Brazil, the United States, and Europe of suspected cartel participants. More than 60 officers from SDE, the federal police, and state prosecutors from Sao Paulo conducted the operation in Brazil. Three Brazilian subsidiaries of the U.S. appliance maker Whirlpool reached a settlement agreement with CADE under which the company would pay a fine of BRL 100 million (about U.S. \$58.7 million) and six executives would pay fines totaling BRL 3 million (U.S. \$1.8 million). These were the largest fines assessed and paid to date in a cartel case. While the respondents admitted guilt as a result of the agreement, the case against other respondents continues.

- 22 The SDE has also entered into cooperation agreements with the Federal Police and with the Secretary of Security of the State of Parana.
- 23 In October 2009, two hundred prosecutors and police officers from different Brazilian states met to discuss cartel enforcement issues and, at the end of the meeting, the formal network was instituted.
- 24 In September 2010, CADE issued its highest ever fine of 2.9 billion reais (EUR 1.3 billion) to five industrial gas manufacturers for alleged long-term cartel activity. The companies' products are used in several industries, particularly health care. The fines to the gas manufacturers are based on 25 percent of the companies' gross revenues in 2003—when the investigation started—except for White Martins, that was fined on 50 percent of its gross revenues, because it was also penalized for recidivism, as it had been previously fined in 1997 for cartel activity. In addition to the firms, seven company executives have also been fined.
- 25 See article 24, Law 8.884/94, available at [http://www.planalto.gov.br/ccivil\\_03/Leis/L6385.htm](http://www.planalto.gov.br/ccivil_03/Leis/L6385.htm).
- 26 See article 4, Law 8.137/90, available at <http://www.planalto.gov.br/ccivil/leis/L8137.htm>.
- 27 Available at <http://portal.mj.gov.br/data/Pages/MJ34431BE8ITEMID3DAD7B1909B2482EB4A0C2456D06789DPTBRIE.htm>.
- 28 In June 2008, CADE and CVM entered into a cooperation agreement that covers technical assistance and exchange of information, available at <http://www.cade.gov.br/upload/Cade%20e%20CVM.pdf>.
- 29 Available at [www.planalto.gov.br/ccivil\\_03/Leis/L6385.htm](http://www.planalto.gov.br/ccivil_03/Leis/L6385.htm).
- 30 There is currently a bill pending approval in Congress that will amend Law 8.884 to consolidate the BCPS into one agency, impose pre-merger notification and provide the agency with a significant number of new, permanent positions. PL 09/2009 had been approved by the House of Representatives and is under consideration in the Senate.
- 31 Available at [http://www.planalto.gov.br/ccivil\\_03/Leis/L6404consol.htm](http://www.planalto.gov.br/ccivil_03/Leis/L6404consol.htm).

- 32 Articles 23 and 24 of Law 8.884/94 list the sanctions that CADE may impose on parties found guilty of cartel conduct and of other anticompetitive conducts.
- 33 The Brazilian Cartel Settlement was introduced in May 2007 through an amendment to the Brazilian Competition Law. CADE, through its Resolutions 46/2007 and 51/2009, has detailed the negotiation rules and procedures. It covers administrative liability and is available for all firms and individuals that are parties to an administrative investigation of cartel involvement. CADE is the antitrust agency with power to enter into settlements. SDE may issue a non-binding opinion directed to CADE on whether or not to settle; it has done this for all cases. Federal and state prosecutors are in charge of enforcing the criminal statute and apart from the case of leniency agreements, where officers and managers that come forward are completely sheltered from criminal liability, a settlement with CADE does not mean that the case will be criminally settled. The criminal settlement has to be negotiated on a case-by-case basis with the state level and federal criminal prosecutors, but due to the close working relationship between criminal and administrative authorities, settlement with CADE increases the probability of settlement with the criminal authorities as well.

# Antitrust Criminal Sanctions: The Evolution of Executive Punishment

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*Donald C. Klawiter\**

Judge Douglas H. Ginsburg and Professor Joshua D. Wright's excellent study of antitrust sanctions for corporations and individuals concludes with a strong recommendation that individual penalties, specifically incarceration, will be the most appropriate and effective penalties for antitrust violations.<sup>1</sup> This article will analyze the punishment of defendant executives as it has evolved during the era of international cartel enforcement (1995 to 2010) and will conclude that, although it was slow to get there, the current enforcement policy and practice focuses much more directly on the defendant executive than it ever has and is approaching the Ginsburg-Wright model as the major deterrence factor. The article also argues that both the Antitrust Division and corporate compliance training must inform the corporate executives much more effectively of the harsh penalties executives will face if they violate the law. Finally, the article reviews several activities that may cause defendant executives greater risk during an antitrust investigation and provides important advice to the executives, counsel, and board members to navigate around those serious risks.

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## I. Introduction

Despite the continuing assessment of huge corporate fines, and the seeming competition between the United States and the European Commission to achieve the highest corporate fines, the clear enforcement trend in the United States in its fight against cartels is to focus on punishing the defendant executive. There are strong proponents for this trend: Senior enforcement officials at the Antitrust Division of the U.S. Department of Justice have long argued that incarceration for senior executives is the greatest deterrent to antitrust violations. More specifically, Judge Douglas H. Ginsburg and Professor Joshua D. Wright's excellent study of antitrust sanctions for corporations and individuals, included elsewhere in this journal, presents a strong recommendation that jail sentences for defendant executives are the most appropriate and effective penalties for antitrust violations.<sup>2</sup> The increased focus on the defendant executive also raises a number of problems that will keep company counsel, as well as targeted executives and their independent counsel, awake at night.

The shift to focusing more intensively on the actions of the defendant executive, not only in the United States, but also in the United Kingdom, Australia, Brazil, Canada, and Japan, is creating greater risks and will require more intensive and sophisticated compliance training. The identification of these issues provides the opportunity to limit the risk that the defendant executive may face by being implicated in a cartel enforcement action.

The United States has, in fact, been moving slowly but consistently in the direction that Judge Ginsburg and Professor Wright suggest with respect to executives, although the enforcers continue to pursue steadfastly the corporate monetary penalties that Judge Ginsburg and Professor Wright would challenge and eliminate. Over the past fifteen years, corporate fines have increased dramatically. With the first of the blockbuster corporate fines of the international cartel era, the \$100 million Archer-Daniels-Midland ("ADM") fine, the Antitrust Division shifted its corporate fine methodology completely away from the old standard of a \$10 million statutory maximum and, in effect, warned that the \$100 million fine would be far more common than the \$10 million one.<sup>3</sup> Thus began the era when the shock and trauma of \$100 million corporate fines became the rule and, for the next fifteen years, the calculation of \$100 million fines became the essential boast of the Antitrust Division utilizing graphs and charts to display the success of the Division's program, including a \$1 billion in corporate fines in 2009.<sup>4</sup>

THUS BEGAN THE ERA WHEN THE SHOCK AND TRAUMA OF \$100 MILLION CORPORATE FINES BECAME THE RULE AND, FOR THE NEXT FIFTEEN YEARS, THE CALCULATION OF \$100 MILLION FINES BECAME THE ESSENTIAL BOAST OF THE ANTITRUST DIVISION UTILIZING GRAPHS AND CHARTS TO DISPLAY THE SUCCESS OF THE DIVISION'S PROGRAM, INCLUDING A \$1 BILLION CORPORATE FINE YEAR IN 2009.

## II. The Development of the Antitrust Division's Criminal Penalties for Defendant Executives

It has taken a very long time for the incarceration of corporate executives, especially corporate executives from outside the United States, to become the standard penalty for antitrust misconduct. The Sherman Act was a criminal statute from the outset and individuals were prosecuted from the earliest days of the law when Sherman Act violations were criminal misdemeanors. In 1921, four contractors were first sentenced to jail—but only for a total of ten months. The next jail sentences—90 days—came in the hand tool investigation in 1959. They were followed by the great electrical equipment conspiracy cases where seven executives were sentenced to two to six months each, still under the misdemeanor statute<sup>5</sup>. When the Sherman Act was made a felony in 1974—and the maximum prison sentence was increased to three years—the Antitrust Division still had very limited success in convincing judges to send convicted antitrust felons to jail, even for a few months. It was only with the creation of the U.S. Sentencing Commission in 1984 and the implementation of the Sentencing Guidelines in 1987 that a consistent and transparent process of calculating antitrust sentences for executives emerged. Even with the Guidelines, however,

THIS PROBLEM WAS HIGHLIGHTED BY THE UTTER DISASTER OF THE INDUSTRIAL DIAMONDS CASE, WHERE THE DIVISION COULD NOT GAIN JURISDICTION OVER ITS DEFENDANTS AND ITS WITNESSES.

only 37 percent of convicted antitrust felons served any jail time during the 1990s. That was certainly not the type of deterrence that Judge Ginsburg and Professor Wright are contemplating in their analysis.

As the cartel enforcement program became more targeted on global cartels, not simply U.S. cartels, the use of imprisonment as a powerful deterrent began to develop—although it did not develop quickly. In the early 1990s, the Antitrust Division had the interest and the resolve to tackle international cartels, but it did not have the ability to obtain the evidence of witnesses outside the United States. This problem was highlighted by the utter disaster of the industrial diamonds case, where the Division could not gain jurisdiction over its defendants and its witnesses. The Court dismissed the ill-fated case at the close of the government's case. This was, indeed, a major setback to the Division's enforcement program.<sup>6</sup> After the trial, the Antitrust Division analyzed its mistakes and developed a strategy to obtain the evidence it needed in international cartel cases.

### A. 1996—NON-U.S. EXECUTIVES DO NOT GO TO JAIL

In the aftermath of the industrial diamonds case, the Division opened a substantial number of international cartel investigations. The focus was clearly on criminally charging large corporations with substantial volumes of commerce in the United States and assessing huge corporate fines. This is obviously not consistent

with the Ginsburg-Wright thesis which asserts both that prison sentences are the strongest deterrent and that high fines for corporations have little deterrent effect, inasmuch as high fines punish the shareholders and consumers. The Division, however, did not have the luxury of compelling witnesses and documents from the rest of the world. The Division at this time had to focus on obtaining the evidence from the non-U.S. executives and, as a result, had to offer them more lenient treatment. Except for the three ADM executives—all U.S. citizens—who were indicted, went to trial, and were convicted, non-U.S. corporate executives took advantage of an Antitrust Division policy that encouraged their cooperation.

Non-U.S. executives who cooperated with the Division were required to surrender to U.S. jurisdiction, plead guilty to a felony, and pay an individual fine. For their cooperation, often against the U.S. executives with whom they conspired to fix prices, they were given no-jail deals and their immigration status as felons was pre-adjudicated so they could travel to the United States freely even though they were convicted of a felony. This was, indeed, an excellent deal for the globetrotting non-U.S. executives, and it provided the necessary incentives to persuade reluctant executives to surrender to U.S. authorities and cooperate fully. With the guarantee of no jail and a friendly immigration decision, many non-U.S. executives took on the mantle of cooperating witnesses and helped the Division build a strong record of enforcement success.

As time went on, however, there were serious inequalities in the sentences different executives received. In the graphite electrode case, the non-U.S. chief executive, who created and operated the cartel with his U.S. chief executive counterpart, pled guilty, was assessed a significant fine that was paid by the company, and received an immigration “all clear.” Meanwhile, his counterpart, who lived in the United States, was sentenced to seventeen months incarceration and fined \$1.25 million that, by statute, he had to pay out of his own resources. This is the starkest example of the sentencing disparities caused by this otherwise brilliant idea of motivating non-U.S. defendants to cooperate with the U.S. investigation. The no jail policy got the international cartel enforcement program off to a strong start in the United States by building strong cases quickly.

WITH THE GUARANTEE OF NO JAIL AND A FRIENDLY IMMIGRATION DECISION, MANY NON-U.S. EXECUTIVES TOOK ON THE MANTLE OF COOPERATING WITNESSES AND HELPED THE DIVISION BUILD A STRONG RECORD OF ENFORCEMENT SUCCESS.

## B. 1998—THE NEW LENIENCY POLICY TAKES HOLD

The perfect complement to the no jail policy was the new U.S. leniency program. Announced in August 1993, the program expanded the opportunity to obtain leniency by making leniency available after an investigation had started, assuming that the Antitrust Division did not yet have sufficient evidence to

establish a case.<sup>7</sup> While it is hard to believe today, the 1993 leniency policy was slow to gain traction. It was only after the dramatic announcement of the \$100 million fine assessed on ADM in 1996, and the assurances by Division officials that this was how the Division would calculate sentencing recommendations in the future, that companies appreciated the value of the leniency program.

THE DIVISION COULD NOW SAY IT DID NOT NEED THE NON-U.S. EXECUTIVE AS CRITICALLY AS IT NEEDED HIM IN 1996, THUS THE NEED FOR THE GENEROUS NO JAIL PLEA AGREEMENTS DECREASED IN IMPORTANCE AND THE DIVISION BECAME MUCH MORE AGGRESSIVE WITH NON-U.S. EXECUTIVES.

The Antitrust Division, which three years earlier believed that it needed to give no jail deals to non-U.S. executives who were seriously culpable, now saw the increasing number of leniency and leniency plus candidates as providing more than significant evidence of global antitrust violations. The necessary evidence of cartel behavior formerly provided by the non-U.S. executive was now increasingly provided by leniency applicants. The Division could now

say it did not need the non-U.S. executive as critically as it needed him in 1996, thus the need for the generous no jail plea agreements decreased in importance and the Division became much more aggressive with non-U.S. executives.

### C. 1999—THE VITAMINS ERA: INCARCERATION FOR ALL DEFENDANTS

The massive vitamins cartel was a picture perfect opportunity to bring about the change the Division's policy regarding non-U.S. executives in cartel cases. The vitamins cartel had a leniency applicant who did not surface until the investigation was ongoing for some time. During that investigation, the Antitrust Division negotiated a plea agreement with a Swiss vitamins executive who agreed to plead guilty and serve a jail term of four months in the United States.<sup>8</sup> The Division announced that it would no longer agree to a "no jail" deal with such key executives. While the Division would continue to pre-adjudicate the immigration status of convicted executives to make it easier for them to continue to travel to the United States, it would insist that they go to jail for limited sentences. This was a major shift in policy.

Looking back to this policy shift, many practitioners believed that non-U.S. executives would never agree to surrender to U.S. jurisdiction and voluntarily agree to go to jail. Yet, a substantial number of non-U.S. executives implicated in these cases have submitted to U.S. jurisdiction and have agreed to serve jail time in the United States. Between 1999 and today, over 45 executives from France, Norway, the Netherlands, Germany, Switzerland, Sweden, the United Kingdom, Japan, Korea, and Taiwan<sup>9</sup> have submitted to U.S. jurisdiction. A review of Antitrust Division press releases and plea agreements confirm that while the initial sentences in 1999 were in the range of three- to six-months, sentences had increased to the nine-month range by 2009.

What incentives do the Antitrust Division provide for these executives to leave their homes and families to go to a foreign country and give up their liberty? Discussions with Division officials and with affected executives suggest that there are generally three incentives. First, if an executive cooperates and serves his sentence, he will be able to travel freely to the United States and continue his career as an international businessman—effectively, his career will continue as it was after this short interruption. While most U.S. companies terminate their convicted executives, this is not often the case in Europe or Asia. Second, the executive makes the sacrifice for his company and his job. The executive understands that the company must cooperate with the Antitrust Division and his lack of cooperation could harm the company's deal with the Division. Since he wants to continue his employment, he will do what the company wishes him to do. He believes his job security is better if he is a good corporate citizen and “takes one for the team.” Finally, the executive understands the perils of being what the Antitrust Division calls an “international fugitive” who is on the INTERPOL Red Notice and is subject to being detained as he enters many countries around the world. He also worries about the risk of his government cooperating with the United States at some future time regarding extradition or other attempts to expedite his surrender. The executive does not want to be hunted and constantly look over his shoulder for antitrust enforcement officials. If the sentence is short enough, the incentive to cooperate is strong; if the sentences are too long, the non-U.S. executives will simply stay home.

WHAT INCENTIVES DO THE ANTITRUST DIVISION PROVIDE FOR THESE EXECUTIVES TO LEAVE THEIR HOMES AND FAMILIES TO GO TO A FOREIGN COUNTRY AND GIVE UP THEIR LIBERTY?

For about ten years, the Division and defense counsel have struggled to develop the correct balance between negotiating plea agreements that place non-U.S. executives in prison and non-U.S. executives deciding to stay out of the United States and other countries that may cooperate with the United States. Many of these executives are at the end of their careers and do not put a premium on international travel, particularly to the United States. This is a clear option for the executive—and each needs to determine what is right for him and his family.

If an executive decides to submit to U.S. jurisdiction, enters a plea agreement, and pleads guilty, that individual will be required to report to a prison facility in the United States. In almost all cases these facilities are minimum security camps such as Lompac (California) or Morgantown (West Virginia). He will be housed in a dormitory setting with other inmates, will be required to work in the prison community, and will have limited opportunities to talk to or visit with friends and relatives.

The ability of non-U.S. executives to have an alternative to not surrendering to U.S. authorities undoubtedly affects the deterrence calculation of the Ginsburg-Wright analysis. As sentences proposed for non-U.S. executives get

longer, many more non-U.S. executives will opt to stay in their homelands. Longer sentences will shift the costs and benefits of surrender significantly towards staying home.

#### D. THE CONCEPT OF THE “CARVE OUT”

Since the late 1990s, the Division has entered into plea agreements with corporate defendants that specifically define the scope of cooperation that the corporate defendant will provide, but expressly exclude certain corporate executives from the cooperation provision of the plea agreement. This list of excluded executives has come to be known as “carve outs.” If an executive is “carved out,” it means that the Division will not, at the time of the plea agreement, consider the executive to be a cooperating witness and he will be a potential candidate for indictment. All other cooperating employees receive a non-prosecution promise that provides some certainty as to their futures. In early plea agreements, the

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Division would also enumerate those individuals whose cooperation they expressly required. In recent times, the Division has not listed the required cooperators; it has only listed the “carve outs.”

The Division has made much of the designation of “carve outs.” On one hand, it has used the growing number of “carve outs” to indicate that the Division is pursuing more and more executives, noting that the later a company seeks cooperation, the more executives will be on the “carve out” list. In some of the more recent cases, as many as seven or eight executives have been listed as potential defendants—a long way from the single executive charged in the late 1990s.

While the Division uses the “carve out” list to press its aggressive pursuit of corporate executives, a careful comparison of the carve out lists against the list of executives actually charged seems to reveal that only a limited percentage of “carved out” executives are actually prosecuted. In fairness, the Division does not represent that all “carve outs” will be prosecuted, but the simple fact is that the Division wants the world to know that these are people who are at great risk of being prosecuted.

Being “carved out,” in many respects, is a significant form of punishment in itself. The executive is placed on a very public list that will be known to the executive’s employer, to his customers, to his family and friends, and to his financial advisors and creditors. If the executive resides outside of the United States, he is unlikely to be able to travel to the United States or to any country with an extradition treaty with the United States unless or until his status is changed. There is no time limitation to the “carve out” designation, so the executive does not know if and when he can resume his business career. While the executive can negotiate a plea agreement with the enforcers, it is virtually certain that a plea agreement will require the executive to serve jail time. Many “carve outs”

have been living under these conditions for several years. That, itself, is real punishment and limits the executive's career and travel opportunities substantially.

### E. 2004-05—TOUGHER MAXIMUM SENTENCES FOCUS ON EXECUTIVES

In June 2004, the Antitrust Criminal Penalty Enhancement and Reform Act of 2004 went into effect. The Act increased the maximum corporate fine from \$10 million to \$100 million or “twice the gain or twice the loss.” More importantly, it increased the maximum penalties for corporate executives from three to ten years imprisonment and from \$350,000 to \$1 million in individual fines. Since the Antitrust Division already had the ability to obtain fines of \$100 million and more through the alternative fine provision, 18 U.S.C. 3571(d), the major impact of the legislation was the ten-year maximum prison sentence.

As a result of the new legislation, the U.S. Sentencing Commission held hearings designed to amend the Sentencing Guideline for antitrust violations, consistent with the higher penalties. The entire hearing focused on the issue of longer prison sentences and deterrence. The Sentencing Commission revised the Antitrust Guideline to a higher starting point for guidelines calculation and established a larger number of enhancements for the volume of commerce affected. The Commission showed considerable restraint in amending the Antitrust Guideline, U.S.S.G. 2R1.1, understanding that sentences that are too harsh will affect the incentives for defendants to cooperate.

THE ENHANCEMENTS TO THE GUIDELINES, HOWEVER, RAISED THE STAKES CONSIDERABLY.

The enhancements to the Guidelines, however, raised the stakes considerably. As in any negotiation, if the Antitrust Division presses too hard and increases its sentencing recommendations too aggressively, the result may be that more defendants go to trial, which uses a significant amount of scarce prosecutorial resources. It may also mean that more and more non-U.S. executives will stay in their homelands and refuse to surrender to U.S. jurisdiction. Neither of these alternatives is very satisfying or valuable to the Antitrust Division.<sup>10</sup> Restraint and balance should guide the Antitrust Division. Excessive sentencing recommendations will weaken the Division's program substantially.

### F. 2007—USING LENIENCY APPLICANTS TO CONDUCT A COVERT INVESTIGATION

In several investigations, the Antitrust Division has asked leniency applicants to continue to participate in the conspiracy that they reported while the Division gathers more and better evidence. This “covert” investigation often takes the form of telephone conversations that are recorded by the FBI, but the most successful operation to date is the Division's video surveillance in the marine hose investigation. Representatives of the major competitors in the marine hose business—virtually all of whom were non-U.S. citizens living abroad—traveled to

Houston, Texas to attend the Offshore Technology Conference, the major annual conference of the offshore oil and gas businesses. Executives from companies in France, Italy, Japan, and the United Kingdom organized a meeting of the competitors at the conference and the leniency applicant, who had been covertly working with the Division, provided the location so the Division could place a video camera in the room and record the meeting. At the meeting, the paid organizer of the cartel made a presentation of how successful the cartel had been for the members, stating that this was not the time for the group to disband.

Armed with a video recording of this meeting, the Antitrust Division obtained arrest warrants and executed them on the participants in their hotel rooms in the early morning hours of the next day. They were arrested and sent to the Houston lockup where they were housed with very dangerous inmates awaiting hearings and trials. They were released on bond, but the court took their passports and limited their ability to travel. They could not return home until they pled guilty and served their sentences or went to trial. Not only were they held in the United States for many months while they negotiated their plea agreements (the “shortest” was over eight months from arrest to incarceration), but because the enforcers caught them on U.S. soil, they were treated for sentencing purposes like U.S. citizens and were not given the usual sentencing discount for submitting to U.S. jurisdiction. Rather than the six to eight month sentences that were

common for non-U.S. executives at that time, the sentences ranged from a low of fourteen months to a high of thirty months.

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The Marine hose matter changed the focus and the equation for sentencing in U.S. antitrust cases. Because the executives were

arrested and held in the United States absent their passports, time became an important condition for the executives. There was a great incentive to cooperate and negotiate a plea agreement because any delay meant a longer time away from their homes and families. Importantly, the Division made the executives the focal point of the investigation and the plea negotiations of the executives took precedence over the corporate plea process, a considerable change in Division focus.

One of the interesting dynamics that took place in marine hose was that the Division first received detailed information about the conduct from the proffers and interviews of the executives, rather than the proffers that are usually controlled by company counsel. Indeed, this reverse process made the “omnibus question” (the inquiry of whether the individual is aware of any anticompetitive conduct in other products) much more of a threat against the company’s opportunity to receive “leniency plus” credit. In this setting, it can be quite easy for the executive to provide evidence of other violations on his own—preempting the company from obtaining “leniency plus” credit. As such, astute counsel for the company and the executive have to plan strategies to make certain that both the

company and the executive received proper credit under the leniency policy for information first provided by the executive.

The marine hose investigation changed the dynamic of criminal prosecutions and made the executive the focal point of the race to the courthouse and the plea agreement process. Obviously, a marine hose case replete with video surveillance is an infrequent occurrence, but it does underscore the far greater interest in pursuing executives rather than corporations in major global cases.

### **G. THE DEFENDANT EXECUTIVE HAS BECOME MORE CENTRAL AND MORE VISIBLE AS THE INTERNATIONAL CARTEL ERA HAS MATURED**

The prosecution of senior executives has evolved and matured since the first international cartel cases in the mid 1990s. From the decision to seek jail for cooperating non-U.S. executives, to the proliferation of “carve outs,” to the arrested executives who were center stage in the marine hose investigation, the Antitrust Division is moving much more in the direction of the Ginsburg-Wright analysis. Other jurisdictions, from Australia to the United Kingdom, from Brazil to Japan, are also shifting their enforcement efforts to the executives. All of those jurisdictions are just beginning serious pursuit of the executives, which will undoubtedly complicate the process for enforcers and defenders alike. Enforcers are not completely there yet, but the focus on executives is certainly evolving—and quickly. The next five years will be a very interesting time for anti-cartel enforcement and for continuing to apply the Ginsburg-Wright thesis.

## **III. Knowledge of Illegal Activity: What Should Keep Implicated Executives and Their Counsel Awake at Night?**

One of the major difficulties in deterring corporate executives from violating the antitrust laws is the lack of knowledge executives have about antitrust enforcement. How can they be deterred if they do not understand that executives just like them are going to jail regularly for cooperating with their competitors? Without greater knowledge of the enforcement environment, executives will continue to find ways to justify their illegal conduct, believing that they are helping their companies, preventing unemployment, and generally not harming anyone. Neither the Antitrust Division nor corporate compliance programs have been aggressive enough at imparting information that will literally keep executives and their counsel up at night. In the deterrence analysis at the core of

NEITHER THE ANTITRUST DIVISION NOR CORPORATE COMPLIANCE PROGRAMS HAVE BEEN AGGRESSIVE ENOUGH AT IMPARTING INFORMATION THAT WILL LITERALLY KEEP EXECUTIVES AND THEIR COUNSEL UP AT NIGHT.

the Ginsburg-Wright thesis, a fundamental element is that executives must know and understand the great risk of cartel behavior, as well as the array of dangers that continue even after the investigation begins. Within the current enforcement cycle of fifteen years, executives and their lawyers have seen every danger and many of them have made executives' personal exposure even greater.

### **A. JUDICIAL AND ENFORCEMENT ATTITUDES ARE MUCH MORE AGGRESSIVE THAN TEN YEARS AGO**

The evolution of the criminal enforcement of the antitrust laws against executives has been dramatic—and very successful. In the United States and throughout the world, the judiciary and the bar have defined this business conduct as “fraud” and “stealing.” That perception was clearly expressed in the Sentencing Commission hearings on the Guidelines revisions, and resulted in the enhanced penalties. Undoubtedly, the ADM and marine hose videotapes, and the realization that very senior corporate executives could conduct themselves with complete disregard of the law, changed the perception of judges, enforcers, and consumers alike. The blatant conduct played out on the ADM tapes brought very strong judicial reaction which obviously affected sentencing decisions. The opening paragraph of Judge Kanne’s opinion in *Andreas*<sup>11</sup> conveys the shock and disgust of the judiciary after seeing the conduct played out on a video screen:

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“For many years, Archer Daniels Midland Co.’s philosophy of customer relations could be summed up by a quote from former ADM President James Randall. “Our competitors are our friends. Our customers are the enemy.” This motto animated the company’s business dealings and ultimately led to blatant violations of U.S. antitrust law, a guilty plea and a staggering criminal fine against the company. It also led to the criminal charges against three top ADM executives that are the subject of this appeal. The facts involved in this case reflect an inexplicable lack of business ethics and an atmosphere of general lawlessness that infected the very heart of one of America’s leading corporate citizens. Top executives at ADM and its Asian co-conspirators throughout the early 1990s spied on each other, fabricated aliases and front organizations to hide their activities, hired prostitutes to gather information from competitors, lied, cheated, embezzled, extorted and obstructed justice.”

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Executives in companies around the globe need to understand that this judge was not overreacting. To a court that viewed the videos and heard the testimony, the reaction was a strong one. Making this understanding a serious part of antitrust compliance is the first step to demonstrating to the executives that the

judiciary will react strongly. If they are participating in similar conduct, they should be terrified.

The first step in antitrust compliance is to teach the executives that prosecutors and courts view this conduct as theft, not as normal business practice, and that if the executive is involved, he is in very serious trouble.

## **B. AN EXECUTIVE SHOULD BE TRAINED TO UNDERSTAND THAT HIS CONDUCT DURING THE INVESTIGATION CAN HAVE SERIOUS CONSEQUENCES**

What do senior executives need to know about antitrust investigations? Senior executives are almost always ill prepared for an investigation. Many of the critical pressure points of the antitrust investigation are dangerous for senior executives because they are simply untutored about investigations—they do not understand law enforcement rules and procedures. For example, senior executives are often visited at their homes by the FBI and Antitrust Division on the day before a formal criminal investigation begins. The enforcers exploit the element of surprise and are often highly successful at getting the executive to provide significant information, including information that will implicate the executive in criminal conduct. Because many executives believe they will look guilty if they do not talk to the enforcers, and because they truly believe they have nothing to hide, executives often provide substantial incriminating information to enforcers at these meetings. In the worst case, executives believe they can persuade the enforcers to go away by minimizing the impact of the conduct, leaving out important details, or just straight out lying to the enforcers.

It is for these reasons that executives should receive compliance training to understand the rationale for these interviews and think of the consequences carefully. The executive will not fully understand the implications of illegal antitrust behavior unless he receives careful and detailed training on a regular basis.

## **C. ACTIONS IN THE BOARDROOM CAN ALSO HAVE SERIOUS CONSEQUENCES**

Independent counsel representing corporate executives in international cartel investigations not only represent their clients in the courtroom; they represent them in the boardroom as well. To be effective, independent counsel must advise their clients carefully to avoid additional—and far greater—criminal risk once the antitrust investigation begins.

Imagine a corporate CEO or other high level executive who was involved directly in cartel meetings and, therefore, is completely aware of the cartel activity when the investigation starts. The day that the investigation begins the CEO may receive inquiries from the Chair of his Board's Audit Committee about the

investigation and the CEO decides he must meet with the entire Board immediately. The CEO is contacted by major customers who want an explanation, as do securities analysts with significant investments in the company. Further, the analysts

ALL OF THESE ARE NORMAL ACTIVITIES THAT THE CEO IS EXPECTED TO PERFORM, BUT THEY BECOME MINEFIELDS WHEN THE CEO OR OTHER SENIOR EXECUTIVES ARE IMPLICATED IN THE ILLEGAL CONDUCT.

wish to have a videoconference and record the meeting, as is their standard procedure. And while all of these meetings are being scheduled, the CEO invites the General Counsel and those assisting in the investigation to brief him on the evidence and the investigative strategy.

All of these are normal activities that the CEO is expected to perform, but they become minefields when the CEO or other senior executives are implicated in the illegal conduct. Independent counsel for the CEO is the person who is most likely to succeed in moving the CEO away from all of these activities. Even the General Counsel, who probably serves at the pleasure of the CEO and is a close friend of the CEO, will have a difficult time moving the CEO away from these “normal” duties. Yet, moving the CEO away from these normal activities is essential to keeping the CEO out of serious trouble—the analysts videotape is perhaps the most dangerous evidence imaginable, and such videotapes have been used effectively in past Antitrust Division trials.<sup>12</sup>

The only way the executive will become aware that these normal duties are dangerous is through careful and detailed compliance training and the strong advice of independent counsel who can guide the executive through this very dangerous time.

#### D. MAINTAINING EMPLOYMENT IS VERY DIFFICULT

In the age of Sarbanes-Oxley and corporate ethics reform, the fate of a senior executive who is charged with antitrust misconduct is perilous—and often very complicated. Many U.S. corporations have zero tolerance for executive misconduct and termination is often viewed as the only appropriate action. In other parts of the world, procedures are not as well defined. There have been examples of European companies that have terminated senior executives, while others have not. The issue is still a new and undefined one in Asia.

One of the major issues that confronts a company when one of its senior executives is a target of the investigation is how the executive’s removal affects the company’s ability to defend itself in the investigation and subsequent litigation. The company that wishes to cooperate with the Division’s investigation and obtain the maximum credit for cooperation needs the cooperation of its executives who were involved in the conduct. An involved executive, at the same time, knows that he will likely be terminated if he pleads guilty or goes to trial, yet he knows that his continued income stream is entirely dependent on the company’s good will towards him. The result is often a very nuanced dance

among the parties. The principal issue is often not salary and benefits; it is the continued advancement of legal fees under an indemnification agreement.<sup>13</sup>

In practice, it is in the company's best interest to pay these fees so that the executive and his counsel maintain a dialogue—and a joint defense agreement—with the company so that the company obtains helpful evidence from that executive. The company will likely need his evidence to assist with the Division investigation and in the private damage litigation that follows.

In addition to the legal fees, there is often an opportunity to negotiate a severance agreement that will move the executive out of the company but provide him with some income that will be helpful as he serves a jail term and then begins to rebuild his life. Whether there is a settlement or not depends on a number of special circumstances in the case as well as the executive's value to the company in resolving the case. Without such an arrangement, the executive and the company may each act against the other's interests, often triggering even more litigation, which could be helpful only to the enforcers and the private plaintiffs.

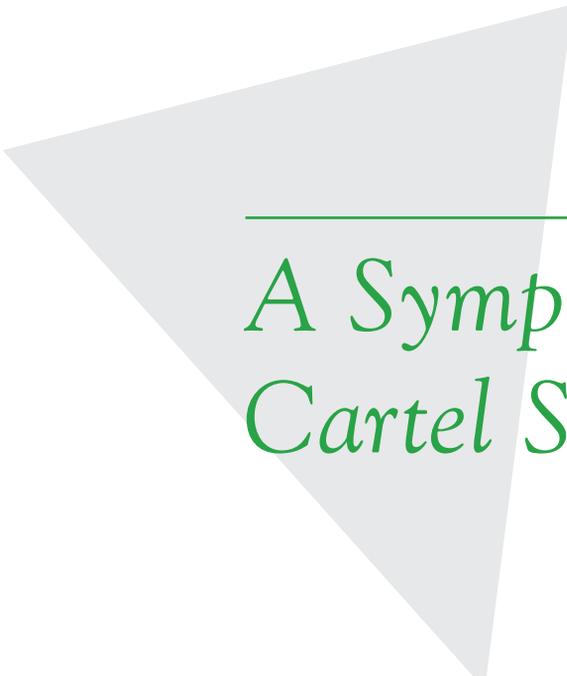
WITHOUT SUCH AN ARRANGEMENT, THE EXECUTIVE AND THE COMPANY MAY EACH ACT AGAINST THE OTHER'S INTERESTS, OFTEN TRIGGERING EVEN MORE LITIGATION, WHICH COULD BE VERY HELPFUL ONLY TO THE ENFORCERS AND THE PRIVATE PLAINTIFFS.

## IV. Working to Keep the Executives Out of Harm's Way

Executives need to be tutored regularly on the perils and consequences of antitrust misconduct. Deterrence cannot be successful unless the stark reality of criminal enforcement and the likelihood of jail are known to the executive. This tutoring is the only way to drive home the impact of a criminal investigation, the trauma of going to jail, and the horror of job removal. By making these events real, deterrence has a chance to work. That is what corporate counsel should highlight and reinforce. Such effective compliance training—not the lecture or slide show, but a candid meeting that examines the subtle issues—ultimately focuses on the corporate executive and the similarity of circumstances between him and those who serve terms in jail and it brings home the tragic consequences of enforcement actions. Only in that environment can Judge Ginsburg and Professor Wright's concept of deterrence have a fighting chance to be successful. ▼

1 Douglas H. Ginsburg & Joshua D. Wright, *Antitrust Sanctions*, 6(2) COMPETITION POL'Y INT'L, (Autumn 2010).

- 2 *Id.*
- 3 United States v. Archer-Daniels-Midland, CR No. 96-CR-00640 (N.D.II, October 15, 1996).
- 4 According to the Antitrust Division's fine chart, 18 companies have been fined \$100 million or more and 57 have been fined between \$10 million and \$100 million.
- 5 See generally Donald C. Klawiter & Jennifer M. Driscoll, *Sentencing Individuals In Antitrust Cases*, 23 ANTITRUST MAG. 75 (Spring 2009). For a more detailed history of criminal sentencing, see Gregory J. Werden, *Sanctioning Cartel Activity: Let the Punishment Fit the Crime*, EUR. COMPETITION J. (2009), available at <http://www.usdoj.gov/atr/public/articles/240611.htm>.
- 6 United States v. General Electric Co., No CR-2-94-019 (S.D. OH, Feb. 17, 1994).
- 7 The original U.S. leniency policy was announced in 1978 by then-Assistant Attorney General John H. Shenefield. It provided that the first company to report its illegal conduct before any investigation was initiated would not be prosecuted criminally nor would its cooperating executives. A small number of companies took advantage of the program. The new leniency policy was announced in 1993 by then-Assistant Attorney General Anne Bingaman. That policy maintained most of the initial program but added the opportunity to seek leniency after an investigation had begun. Leniency was available to the first company in and all of its cooperating executives if the Division did not yet have evidence sufficient to establish a case.
- 8 United States v. Kuno Sommer, CR 3:99 CR 201-R (N.D. Tx, May 20, 1999). Scott D. Hammond, Deputy Assistant Attorney General, Antitrust Division, *The Evolution of Criminal Antitrust Enforcement Over the Last Two Decades*, Feb. 25, 2010, at 7, available at <http://www.justice.gov/atr/public/speeches/255515.htm>.
- 9 *Id.* at 7.
- 10 For a more expansive discussion of these strategy considerations and the likely results of aggressive sentences, see Klawiter & Driscoll, *supra* note 5.
- 11 United States v. Andreas, 216 F.3d 645 (7th Cir. 2000).
- 12 For a more detailed discussion of these difficult activities see Donald C. Klawiter, *Please Show This To Senior Executives: Risks of Antitrust Investigations in the Courtroom and the Boardroom*, COMPETITION L. INT'L (October 2006) at 32.
- 13 At the beginning of an investigation, senior executives that may be involved in the conduct under investigation are asked to execute an undertaking by which the company agrees to advance them their legal fees and the executive agrees that if he is determined to have acted contrary to the company's interests he commits to repaying the advanced fees. The fees in these cases may add up to hundreds of thousands or millions of dollars and are thus substantial revenues for the executive.



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*A Symposium on  
Cartel Sanctions*

# Recidivism Revealed: Private International Cartels 1990-2009

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*John M. Connor\**

The objective of this paper is to look for empirical regularities in the sample of 389 recidivists that engaged in international price-fixing in the past 20 years. Recidivism appears to be increasing rapidly, both in number and relative to all corporate cartelists. Recidivists are overwhelmingly headquartered in northern Europe or Japan, and they tend to be highly diversified multinational firms that sell homogeneous producer goods. The skills acquired from participating in multiple price conspiracies are transferrable across divisional lines at very low marginal costs. Those acquired skills include identifying feasible collusive opportunities, negotiating mutually satisfactory deals, diplomatically dealing with partners when no enforceable contract exists, and evading detection by the antitrust authorities.

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## I. Introduction

High rates of or rising trends in recidivism is evidence that enforcement of a criminal law is failing.

The principle goal of a criminal legal system is to impose predictable sentences that are so painful that would-be violators will decide that the costs of a crime outweigh the benefits.<sup>1</sup> This rule is derived from the legal-economic theory of optimal deterrence, which has become the touchstone of the leaders of the world's major antitrust authorities.<sup>2</sup> In the case of collusive group crimes like price-fixing, deterrence means that companies or individuals, after weighing the probable gains versus expected losses associated with overt collusion, decide that it would be less profitable to form a cartel (or join an existing cartel) than to adopt a form of business conduct that does not involve illegal manipulation of markets. One factor a future criminal must take into account is the probability of being apprehended. The lower the chance of being detected, the higher the optimally deterring sanctions. For modern cartels, which are outlawed in nearly every corner of the world, the probability is well under 100 percent; most scholars believe that it averages less than 30 percent.

Recidivism is a significant issue in cartel enforcement. In the past 25 years, antitrust authorities have increasingly incorporated counts of corporate recidivism as an aggravating factor in their cartel-fining guidelines. Economic theory supports such policies because prior experience in cartelization is believed to enhance a participant's ability to negotiate and sustain future collusive agreements. Legal experts are somewhat more divided on the wisdom of corporate recidivism penalties. However, these policies seem to have been implemented on the basis of the limited, perhaps anecdotal, experience of single agencies with defendants. There is virtually no literature on the dimensions, determinants, or effects of cartel recidivism.

This purpose of this paper is to examine evidence on the patterns and trends in recidivism among corporate participants in large hard-core cartels in the past two decades. A large sample of recidivists is drawn from a data set of nearly 600 international cartels discovered by antitrust agencies, competition-law commissions, and plaintiffs in private actions from 1990 to 2009. While much has been written about recidivism in the abstract, as far as I know the present paper is the first to examine empirically, on a large scale, the issue of price-fixing recidivism. The results of the analysis may yield empirical regularities that can guide future theoretical and empirical modeling.

The following section defines recidivism and reviews the role of recidivism in sentencing members of hard-core cartels. The following sections review previous

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empirical studies; describe the data sample; analyze the number of recidivists discovered along with their sizes, industries, and geographic location; look at trends; and describe some interesting specific cases.

## II. Definitions and Legal Standards

Recidivism in criminology is the act of a person repeating an undesirable behavior after having been sanctioned previously for that behavior.<sup>3</sup> Individual criminal recidivism is highly correlated with psychopathy.<sup>4</sup> The psychopath is defined by an uninhibited gratification in deviant, criminal, or aggressive impulses and the inability to learn from past mistakes. Individuals with this disorder gain satisfaction through their antisocial behavior and lack remorse for their actions. Some legal scholars argue that the reasonableness of penalties for corporate recidivism requires that companies have stable personalities over time.<sup>5</sup> A firm's top management and even its organizational structure may impart a distinctive "corporate culture."<sup>6</sup> Whether companies can develop pathologies is a matter of speculation beyond the scope of this paper.<sup>7</sup>

Companies can also be recidivists under the law. In the context of price-fixing, a company will be identified as a recidivist in the most general sense if it is convicted a second time for cartel conduct, no matter where or when the earlier violation took place. Cartels tend to be formed in narrowly defined product markets. Because many companies are large, diversified organizations, some might argue that corporate recidivism could be reserved in a more restricted sense to mean repeated violations in an identical market. However, criminal systems generally, and antitrust in particular, do not apply such a narrow definition. An individual guilty of fraud is likely to receive a more severe sentence if she was guilty of insider trading, at least if the first crime occurred within some specified time period. So too in antitrust enforcement; previous convictions for price-fixing

COMPANIES CAN ALSO BE  
RECIDIVISTS UNDER THE LAW.

in any line of business within a decade or so are cause to increase sentences for repeated price-fixing.

The laws of many nations regard evidence of repeat offenses as an indicator of a propensity to commit future crimes.<sup>8</sup> Therefore, a history of criminal acts is a relevant consideration in sentencing offenders. That history may apply perpetually and to all crimes, but more often recidivism in similar classes of crimes and more recent instances are given greater weights in sentencing a perpetrator. Under U.S. federal law, all prior convictions of §1 of the Sherman Act within the past 10 years are given equal weight in cartel sentencing decisions.

Large or increasing numbers of cartel recidivists is symptomatic of flaws in the structure of anti-cartel enforcement. More specifically, high recidivism rates indicate that current sanctions do not deter cartel formation or continuing collusion.<sup>9</sup> Large numbers of recidivists may indicate that the total number of car-

tels being created is high—the very phenomenon that optimal deterrence policy was meant to stamp out. Increases in cartel formation might be due to increases in the profitability of hard-core collusion, but empirical investigations suggest otherwise. Overcharges attained by contemporary cartels, while higher than many have believed, have been trending downward since the late 19<sup>th</sup> century, even during periods in which significant antitrust enforcement was in evidence.<sup>10</sup> Recidivism might rise if fewer clandestine cartels were being uncovered by antitrust authorities. However, the advent of automatic, well-designed amnesty programs seems to have resulted in an increase in the proportion of secret price-fixing schemes that have been detected after 1993.<sup>11</sup> Increased recidivism may also be associated with sub-optimal monetary sanctions on cartelists that are caught; indeed, empirical work on optimal sanctions has suggested that *ex post* penalties are too low. Penalties rarely disgorge the monopoly profits (properly measured) garnered by members of the great majority of cartels. Most legal-economic scholarship favors the last explanation.

PENALTIES RARELY DISGORGE  
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Senior antitrust officials are aware of the problem; indeed, one Department of Justice (“DOJ”) official observed that price fixers “tend to be recidivists.”<sup>12</sup> A belief that recidivism undermines the effectiveness of cartel deterrence is revealed by the fining policies and practices of the DOJ and the European Commission (“EC”). The U.S. Sentencing Guidelines (“USSGs”) that apply to federal criminal violations like hard-core price-fixing consider prior criminal price-fixing convictions an aggravating factor in the determination of suggested fines.<sup>13</sup> The EC began imposing higher fines for cartel recidivism during 1998-2004 under its first guidelines.<sup>14</sup> In 2006, the second guidelines specified increases of 50 percent to 100 percent in cartel fines for each instance of “similar” repeated infringements. This change was sanctioned by decisions of the European courts.<sup>15</sup> The EC and DOJ policies on recidivism are jurisdiction-specific. Empirical studies verify that price-fixing fines imposed by the EC and the DOJ are higher for recidivists.<sup>16</sup> Thus, knowledge about the dimensions of recidivism can have antitrust policy relevance.

Changes in corporate structure may be a consideration in defining corporate recidivism. In this study only ultimate corporate parents are units of observation. Thus, if a company that was sanctioned for price-fixing was subsequently acquired by a new parent firm, the acquiring firm is disgraced by the crime of its acquired unit. This procedure is consistent with the legal principle that firms acquire both the assets and liabilities of merged units. For example, in 1999 the large German chemical company Hoechst merged with Rhone-Poulenc and was renamed Aventis; in turn Aventis merged with Sanofi and is now called Sanofi-Aventis. Price-fixing convictions of Hoechst and Rhone-Poulenc become assigned to the present Sanofi-Aventis.

Time limits may be imposed by legal authorities for defining recidivism. In the United States the time limit is ten years prior to the date of the guilt-finding. This practice may arise out of administrative convenience or because companies, like individuals, may be seen as capable of shedding their criminal tendencies. However, in the *French Beer* case the EC decided to apply recidivism as an aggravation factor in price-fixing decisions without regard to time.<sup>17</sup> Thus, in principle the EC can reach back to 1960s to identify previous price-fixing violations. The present study traces recidivism over a 20-year period.

Some legal authorities may not consider a company that was engaged in contemporaneous cartels in different markets to be a recidivist because one illegal act did not precede the other. In this paper, contemporaneous counts of recidivism will be counted as evidence of recidivism, partly because dates of participation by one company are not always known with precision, whereas the dates of collusion for all the companies are usually well known.

### III. Literature Review

Most of the literature touching on recidivism tends to be of a theoretical nature: optimal deterrence proofs or analyses based on the philosophy of law. In general, the former attempt to verify that the nearly universal practice of escalating penalties for recidivists is rational, whereas the latter try to establish that such penalties are at variance with legal theory. There are few articles that examine recidivism in specific law cases and fewer still that fall into the empirical legal-economic literature.

#### A. OPTIMAL DETERRENCE PROOFS

There is a fairly rich but inconclusive body of theoretical analyses of general criminal recidivism in the Beckerian tradition.<sup>18</sup> Among the earlier influential contributions, Rubinstein<sup>19</sup> and Polinsky & Rubinfeld<sup>20</sup> offer one reasonable defense of the practice. These models are built upon adverse selection. Repeat offenses are envisioned to be a strong signal that the defendant is a committed criminal with little likelihood of prosecutorial error. In addition, in Polinsky & Rubinfeld's model recidivism serves as a signal to prosecutors that helps separate the gains from legal conduct from the gains to illegal conduct. This assumption might be consistent with screening rules formerly used by antitrust enforcers to open cartel investigations. These models prove that under certain parametric values, recidivism penalties are optimal.

An alternative modeling approach focuses on the “pure moral hazard problem,” i.e., one in which the government's objective is to deter crimes. This approach seeks an efficiency rationale for escalating criminal sanctions for repeat offenders. Generally, recidivism is seen to be a factor that could affect the probability of cartel detection. For this type of model, Emons<sup>21</sup> judges that the results

of the literature are less convincing. “For the well developed law and economics literature on deterrence escalating sanction schemes are still puzzling.”<sup>22</sup> Recidivism penalties are justified only under special assumptions that may not be realistic. For example, in Emons’ model, the size of illegal gains and the probability of detection are correlated; with this relationship, escalating recidivism penalties makes the choice of a law-abiding career relatively more attractive than repetitive crime. In an antitrust environment where most cartels are detected through leniency applications and have little to do with price- or performance-screening, it is difficult to justify such assumptions.

Mungan<sup>23</sup> develops a two-stage game-theoretic model in which learning takes place.<sup>24</sup> Offenders learn better how to cover up their second crimes (i.e., they know that the probability of detection falls with experience), and enforcers learn to target previous offenders when they next investigate (i.e., they “round up the usual suspects”<sup>25</sup>). The optimality of recidivism penalties turns upon the relative power of the learning effects: If offenders learn “more” than enforcers, recidivism penalties are rational. Unlike all of the previous analyses above, Mungan’s model does not assume that there is no error of prosecuting the innocent.

## B. LEGAL POLICY ANALYSES

Although more severe treatment of recidivism is now enshrined in most cartel-fining guidelines, not all observers agree on the wisdom of doing so. In general, these critiques ignore optimal deterrence thinking, instead appealing to widely shared legal principles. And the most heated debate has occurred over EC policies.<sup>26</sup>

For example, Jeremy Lever, a prominent UK lawyer, disagrees in principle with using recidivism as an aggravating factor in EC fines upon companies; rather, he favors the imposition of individual penalties on executives who are recidivists:

ALTHOUGH MORE SEVERE  
TREATMENT OF RECIDIVISM IS  
NOW ENSHRINED IN MOST  
CARTEL-FINING GUIDELINES, NOT  
ALL OBSERVERS AGREE ON  
THE WISDOM OF DOING SO.

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“The Commission’s approach to recidivism seems to me to betray a failure to understand the relevant differences between individuals (*personnes physiques*) and corporate undertakings (*personnes morales*). Individuals can certainly have a propensity to commit offences, usually of a particular kind (e.g. the serial rapist, the professional burglar). But corporations as such do not have propensities.”<sup>27</sup>

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Beginning with the EC’s 1998 cartel-fining guidelines, perpetrators in hard-core cartels were subject to a 50 percent increase in their fines for one or more previous price-fixing infringements under the EU Treaty, with no time limit. From 1998 forward, this aggravating factor merited up to a 100 percent increase for each prior conviction, including convictions by the Member States. Shortly after the 2006 EC fining guidelines were released, Wils published a detailed legal analysis of issues concerning repeated infringements as an aggravating factor.<sup>28</sup> He admits that if the purpose was to increase general deterrence, the Commission could have reasonably raised the general fine level; however, citing European court decisions and general legal principles, raising company-specific penalties is also justified if recidivism is an indicator of the propensity of a perpetrator to commit cartel violations. Moreover, recidivism may signal that a perpetrator has learned to evade detection. This position amounts to a call for specific deterrence.<sup>29</sup>

Other authors opine that a recidivism penalty is more appropriate where there is a strong connection between one price-fixing offence and another, such as price-fixing in similar markets or by the same employees.<sup>30</sup> Wils agrees that recidivism only applies to “similar” crimes, presumably hard-core price-fixing. However, Wils seems to disagree with one EC interpretation of the similarity requirement that was overly narrow.<sup>31</sup> In *Belgian Beer* no penalty was applied to a member of a “price-fixing cartel” that had been fined previously as a member of a “market-sharing cartel.” Economists tend to conflate the two types of conduct.

BECAUSE CORPORATIONS HAVE  
BEEN GRANTED THE LEGAL  
PRIVILEGE OF IMMORTALITY,  
FUTURE VIOLATORS ARE LIABLE  
FOR RECIDIVISM PENALTIES  
“IN PERPETUITY.”

The final issue is whether recent recidivism ought to be given greater weight than historically distant ones. Norlander<sup>32</sup> is highly critical of recidivism penalties contained in the EC’s fining guidelines for cartel infringements. In particular, unlike nearly all of the EU’s member

states, the EC guidelines have no time limit in counting repeat offenses. Because corporations have been granted the legal privilege of immortality, future violators are liable for recidivism penalties “in perpetuity.”<sup>33</sup> This, Norlander argues, violates proportionality in sentencing. In response, Wils<sup>34</sup> cites a European court decision that empowers the Commission to set its own rules for recidivism as an aggravating factor in sentencing, including the right to apply temporal weights to prior infringements.<sup>35</sup>

### C. EMPIRICAL LEGAL-ECONOMIC STUDIES

An influential early study of several categories of corporate crime by Clinard & Yeager concluded that “...large corporations in general commit no more violations per unit size than do smaller corporations.”<sup>36</sup> These authors also found that firm diversification was weakly positively related, while profitability and growth

rates were inversely related to many types of crime.<sup>37</sup> Alexander and Cohen<sup>38</sup> take a different approach. They assemble a sample of publicly traded firms convicted of federal crimes during 1984-1990 and focus on corporate governance as explanatory factors. They find that corporate crime is highest when officers and directors own less than 10 percent of the firm's stock and when the CEO is entrenched. The equity size of firms generally has no effect on the likelihood of violations.

There are three descriptive studies of cartel recidivism based on U.S. cases. Shughart and Tollison<sup>39</sup> examined recidivism in FTC cases, but few involved cartel conduct. An earlier review identified over forty corporate defendants who faced four or more indictments and convictions for U.S. antitrust offenses between July 1955 and 1980.<sup>40</sup> Among those criminally convicted for multiple antitrust violations during this twenty-five-year period were: Westinghouse Electric Corp. (20 violations); General Electric Co. (19 ); United States Steel Corp. (11); Mobil Oil Corp. (11); Phillips Petroleum Co. (7); Shell Oil Co. (7); Bethlehem Steel Corp. (7); and Gulf Oil Corp. (6). Dalton & Kesner<sup>41</sup> examined the number of 1980-1984 antitrust violations ascribed to the Fortune 500 industrial companies; the top 250 were three times as likely to be recidivists (24 percent) as were the next 250 firms (7.6 percent). As a former Assistant Attorney General for the Antitrust Division said, the DOJ files "contain the stories of industries that seem again and again to have had antitrust difficulty" and that corporate recidivism "is not at all unknown in the antitrust world."<sup>42</sup>

A laboratory experiment by Bigoni et al.<sup>43</sup> reports that when leniency programs are introduced, cartel recidivism is reduced compared to a no-leniency regime. One might infer from this finding that *ceteris paribus* the introduction of effective leniency programs ought to reduce the need for additional recidivism penalties, if not eliminate them.

There are two formal legal-economic empirical studies of antitrust recidivism. First is an event study by Simpson & Koper.<sup>44</sup> Using a sample of 38 corporations charged with one or more serious antitrust violations between 1928 and 1981, they attempt to see whether sanctions affect the likelihood of a firm's re-offending. Controlling for changes in antitrust law and the economic conditions of the firm, industry, and general economy, they find weak evidence that past guilty verdicts inhibit recidivism. Moreover, criminal felony penalties have stronger effects on reducing recidivism than misdemeanor penalties. Second, Bolotova et al.<sup>45</sup> examine cartel recidivism over long periods of history within the same industry. They find evidence that high overcharges reduce the number of episodes.

Although it deals with environmental laws, an analysis by Miller provides additional insights into recidivism.<sup>46</sup> He examines civil and criminal actions against companies and their employees by the U.S. Environmental Protection Agency ("EPA"). Using data from 1970 to 1997, a non-parametric approach is employed to estimate recidivism probabilities and impacts of various types of regulatory actions. Miller concludes that civil lawsuits with higher fines imposed on firms are

not more effective at reducing repeat offenses (recidivism) than administrative actions, which carry much lower fines. However, criminal lawsuits significantly reduce recidivism. There is also evidence of a dynamic liability effect where civil lawsuits against companies with one or more priors carry higher fines and significantly reduce recidivism. He also finds that limits on owners' ability to contract with employees in the event of criminal action may serve as an explanation for the apparent power of such enforcement over future company behavior.

HOWEVER, CRIMINAL  
LAWSUITS SIGNIFICANTLY  
REDUCE RECIDIVISM.

## IV. Data Sample

The sample employed in this paper is derived from the author's *Private International Cartels Data Set*, ("PIC"). In common with nearly all other empirical studies on cartels, this paper considers only discovered cartels. Studies that depend on discovered cartels may suffer from sample selection bias. These cartels were clandestine, and their members typically attempted to cover up or destroy evidence of their meetings and communications. Cartel studies generally conclude that only about 10 percent to 30 percent of all such conspiracies are discovered and punished. Undiscovered cartels are probably more durable than discovered cartels and may differ in some other economic characteristics.

The PIC consists of information collected at two levels: the market (i.e., the whole cartel), along with the companies and individuals that are members or alleged members of the cartels.<sup>47</sup> The market sample comprises 648 hard-core cartels. Seventy-four percent of these cartels at a minimum have had several participants indicted or sanctioned by an antitrust authority; the greatest amount of information is available for these cases. Ten percent of the cartel investigations have been closed (in some cases because of a statute of limitations), and 16 percent are still being investigated. All private cartels with international membership that were discovered between January 1990 and December 2009 are in the sample; cartels protected by sovereignty or multilateral treaty are excluded, as are suspected cartels with no sanctions imposed after about five years.

Instances of recidivism are the number of times a company participated in unique, convicted hard-core cartels. If a company was sanctioned<sup>48</sup> by multiple jurisdictions for the same crime, that counts as one cartel offense. If a company admitted its guilt but was granted one or more full amnesties, that counts as one crime. Punished cartelists are frequently affiliates of larger corporate groups. Although it is difficult to trace ownership for many firms, PIC attempts to identify the ultimate controlling parent group of sanctioned companies; in the case of joint ventures, the parent that was fined is assumed to be the controlling owner. Company names that have changed in the past are updated to the company's present name. If a parent group acquired a convicted affiliate, following the legal rule of liability, the sins of the children are counted as sins of the par-

ent group. For example, Hoechst and Rhone-Poulenc merged to form Aventis in 1999; because the two merger partners had each been convicted of price-fixing in the markets for two vitamins, Aventis (now Sanofi-Aventis) was credited with two crimes.

Identification of recidivists is hampered by the practices of some European antitrust authorities that fail to identify by name all convicted cartelists.<sup>49</sup> For example, although not a general practice, the Netherlands did not identify on its website the great majority of the 2000 construction firms that were discovered to have engaged in bid-rigging in the 1990s and early 2000s; only a few are known by name from press reports. The German Federal Cartel Office likewise is inconsistent in naming and shaming cartelists, both corporate and individual. Consequently, the number of companies that are recidivists is undercounted in this study.

IDENTIFICATION OF RECIDIVISTS IS HAMPERED BY THE PRACTICES OF SOME EUROPEAN ANTITRUST AUTHORITIES THAT FAIL TO IDENTIFY BY NAME ALL CONVICTED CARTELISTS.

## V. How Many Recidivists, How Much Recidivism?

The number of corporate price-fixing recidivists is described in two previous publications. First, Bosch & Eckard<sup>50</sup> prepared a data set that was a sample of 127 firms that were indicted for price-fixing in the United States from 1962 to 1980. They noted that 14 percent of the sample consisted of repeat offenders. Second, Connor & Helmers<sup>51</sup> reported that there were 174 recidivists in their sample of 283 private international cartels that were sanctioned during 1990-1995; recidivists comprised 11.3 percent of all non-anonymous cartel participants in the sample. Connor & Helmers relied on an earlier version of the PIC used in the present paper.<sup>52</sup>

Four years later, by the end of 2009 the number of cartels detected rose by 124 percent. The number of recidivists increased to 389, which is 18.4 percent of the total number of non-anonymous cartelists (Table 2). The number of cases<sup>53</sup> of recidivism (among firms known by name) rose to 1,548 by the end of 2009. That number is surely an underestimate. One reason is that some antitrust authorities customarily do not reveal the names of fined violators by name; similarly, the DOJ treats the identities of amnesty recipients as confidential.<sup>54</sup>

The sample covers cartels discovered over a 20-year period. Here I examine the annual discovery rates of recidivists from 1990 to 2009 compared to all cartelists. Before 1990, relatively few recidivists were members of discovered cartels (Table 2). However, the relative frequency increased after 1990 and was quite high during 1995-2004. In 2005-09 the rate slowed somewhat. It is difficult to interpret this temporal pattern. Could it mean that during 1995-2004 there was a bandwagon effect, and that it has recently petered out?

The mean number of cartels per recidivist is 4.0, but this number is highly negatively skewed. Most of the recidivists engaged in only two cartels and two is, of course, the minimum number. At the other extreme, 52 firms were members of seven or more cartels; 26 were in ten or more cartels; and six companies engaged in 20 or more cartels (Table 1). These top recidivists are primarily headquartered in the EU. The largest single number (eight of the 52) is French firms; indeed, three of the top six firms—each with at least 20 examples of recidivism—are French. The remaining European recidivists are mainly headquartered in Germany and other northern nations. The second largest block of leading recidivists is the seven companies from Japan and Korea. Only five U.S. companies are leading recidivists.

## VI. How Big Are Recidivists?

It is apparent that leading recidivists tend to be highly diversified multinational companies. Detailed histories of modern global cartels have detected examples of collusion that spread like a contagious disease within and between companies; some of the histories have even identified the managers who were carriers. For example, executives of Hoffmann La Roche who had first organized the rebirth<sup>55</sup> of the global vitamins cartel in 1989-1990 recruited other companies in Europe and Japan; these firms, in turn, reached out to close rivals in their respective geographic regions.<sup>56</sup> The same Roche employees later contacted top executives in

ADM to form the global citric acid cartel; the success of citric acid inspired these ADM managers to initiate the global lysine cartel.<sup>57</sup>

ARE DIVERSIFIED MULTINATIONAL  
COMPANIES MORE PRONE TO  
RECIDIVISM THAN SINGLE-LINE,  
SINGLE-NATION FIRMS?

Are diversified multinational companies more prone to recidivism than single-line, single-nation firms? At first blush one would think

that economic logic supports this proposition. Diversified companies tend to have multiple divisions organized by product groups or by geographic markets served by a grid system that combines product and geographic dimensions. While companies employ managerial transfers and communication systems intended to overcome lack of coordination between divisions, compartmentalization is bound to persist. As a result, when one division or subsidiary of a company is convicted of price-fixing, the learning from the adverse consequences is likely to be greater within one unit and more muted across divisional boundaries.

Moreover, if some cartels are formed or managed by rogue managers,<sup>58</sup> then their distribution across business units may be supposed to be random. That implies that a diversified parent group with ten divisions is ten times more likely to be caught than each of ten specialized firms. A third factor is the spread of knowledge or even excitement about the profit advantages of cartelization. If one division of a diversified firm successfully engages in collusion, top managers

may encourage the adoption of the idea across some of the company's other business units.<sup>59</sup> This hypothesis deserves formal testing in the future.<sup>60</sup>

## VII. Where Do Recidivists Come From? Products, Industries

This section explores what the industrial or geographic distribution of recidivists is and whether it differs from non-recidivists. A simple way of comparing the distribution of recidivists to all recidivists is to compute the sample shares across categories for all cartelists and for the recidivist subsample. The shares of all cartelists can serve as a base. For a given category, the ratio of the recidivist share to the total share yields a convenient indicator of the relative distribution of recidivists to all cartelists (Table 2).

To start with, I examine the product types by stage of processing. Of the six product types, recidivists were detected in cartels making inputs, especially capital goods, more frequently than all other cartelists. Recidivist firms were 60 percent more likely to collude in capital goods like elevators than were cartelists in general. For consumer goods and services, recidivists were not as common as sellers as were non-recidivists. These data suggest that recidivists sell relatively homogeneous products.

RECIDIVIST FIRMS WERE 60 PERCENT MORE LIKELY TO COLLUDE IN CAPITAL GOODS LIKE ELEVATORS THAN WERE CARTELISTS IN GENERAL.

Cases were also categorized into 28 industry groups. In some industries like forestry, clothing, and furniture, there are so few examples of cartels that comparing relative frequencies is not meaningful (Table 2). In other industries, such as mining, paper, nonmetallic minerals, miscellaneous manufacturing, and transportation, there are no significant differences in the frequency of cases between recidivists and other cartelists. Recidivistic cartelists tend to be relatively frequent sellers in (or drawn to) the following industries: organic chemicals, petroleum products, rubber and plastic, machinery, electronics, and public utilities. Many of these industries have significant technological or regulatory barriers to entry. On the other hand, recidivists tend not to operate as frequently as other cartelists in the construction, food, tobacco processing, textiles, wood, inorganic chemicals, fabricated metals, finance, insurance, banking, and other services industries. What explains the industrial distribution of recidivists is beyond the scope of this paper.

## VIII. What Kind of Cartels?

Does the participation of recidivists result in cartels that have different characteristics from the typical cartel? Or, put another way—because experts do not know which way the causality runs—are recidivists drawn to cartels that are

atypical in any way? Recidivists generally have more experience with collusion than firms with singular experiences. Because successful collusion requires special, learned skills (predicting the potential for profit, bargaining and diplomatic skills, and evasion of detection), one might expect recidivists to be drawn to relatively high profit ventures with high risk tolerance. The characteristics that will be examined are numbers of participants, bid rigging, and duration.

### A. NUMBER OF PARTICIPANTS PER CARTEL

The sample data show that recidivists are drawn to cozy cartels. Specifically, recidivists tend to populate cartels comprised of eight or fewer members, and they are especially fond of cartels with three or four participants.<sup>61</sup> Cartels with few members are somewhat easier to organize, to manage, and to keep hidden. By contrast, in cartels with more than 20 members, recidivists are relatively rare.

### B. BID RIGGING

The participant size of cartels is consistent with one distinction in price conduct, viz., the use of bidding rings in contract auctions versus a classic setting of selling prices or industry output levels. The sample data show that recidivists engage primarily in classic price-fixing rather than bid-rigging, though the difference is not particularly strong (Table 2). Bidding rings tend to have larger numbers of players and tend to be found in certain industries like construction.

### C. CARTEL DURATION

This section examines whether cartels that are populated with recidivists contribute to cartel “success.” Cartels succeed from a private point of view when they generate large total monopoly profits for their members. Two dimensions of private success are the size of price effects and the longevity of the cartel.<sup>62</sup> The latter is more readily measured (see Table 2). Recidivists tend to be found in quite durable conspiracies. Relative participation of recidivists is average or below average for cartels with durations of less than eight years, which is above the median length of international cartels.

RECIDIVISTS TEND TO BE FOUND  
IN QUITE DURABLE CONSPIRACIES.

Recidivists are found relatively frequently in cartels with longevities of eight to 15 years and of 20 years or more.

## IX. Has Anyone Learned?

One rough way to tell if cartel sanctions have worked to discourage recidivism for some companies is to perform a prospective analysis. If sanctions have the power to dissuade companies to engage in repeated violations, one would expect to see a reduction, if not elimination, of such conduct in subsequent periods. Let us look at the leading recidivists that were sanctioned in 1990-99 and see how

many avoided sanctions in the next ten years (Table 1). The answer is none! No firm learned to avoid participating in cartel conduct in the 2000s after being sanctioned for that same conduct discovered by competition-law authorities before 2000.

But perhaps that tough standard needs to be relaxed to capture legal learning-by-doing. After all, there were several times more cartels discovered during 2000-09 than before 2000. Thus a loosed criterion would look for recidivists that exhibited a *slowing of the rate of recidivism*. Consider, for example, the ADM Co. It was sanctioned mightily for its ring-leading roles in seven cartels—Lysine, Citric Acid, High Fructose Corn Syrup, and others—all of which were discovered before 2001. Since then, ADM has been “clean.” I think one can infer some cartel-avoidance behavior among a few other recidivists in Table 1: Sanofi-Aventis, Bayer, A. P. Moeller, ThyssenKrupp, Degussa, Stora Enso, Air Liquide, Solvay, and Sumitomo Chemicals.

Unfortunately, for most of the remaining 43 top recidivists, one observes an acceleration in the rate of recidivism after 1999. In general, the top recidivists engaged in three times as many discovered cartels after 1999 than in the decade before 2000. Total SA, for example, the current world champion of cartel recidivism, engaged in almost 90 percent of its cases during 2000-09. Indeed, ten companies were clean before 2000 and began joining cartels only afterwards. Serious enforcement of anti-cartel laws was well along in Europe and North America during the 1990s, yet these ten companies and score of others seemed to have learned no lessons.

IN GENERAL, THE TOP  
 RECIDIVISTS ENGAGED IN THREE  
 TIMES AS MANY DISCOVERED  
 CARTELS AFTER 1999 THAN IN  
 THE DECADE BEFORE 2000.

## X. Three Interesting Cases

Wagner-von Papp<sup>63</sup> relates a most interesting case of recidivism, taken from a 2006 German Pre-insulated Pipes cartel decision and unusually severe sentences imposed by the Regional Court in Munich.<sup>64</sup> This decision closely followed the eponymous EU cartel decision made by the EC during March 1996 to October 1998<sup>65</sup>. The EU cartel covered illegal collusion in several Member States in northern Europe during 1990-1996. The Commission imposed relatively high fines, and its decision was appealed. Starting in 2000,

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“...while the appeal before the Court of First Instance was still pending, one of the German participants of the Pre-Insulated Pipes Cartel re-initiated contacts with its competitors, exchanged information about current and future bids, agreed the submission of cover bids, and submitted rigged bids on

several occasions between 2001 and 2004. All this was done with the stated objective of raising prices between 5 and 15 per cent.

The driving force in the renewed cartelisation efforts was the main defendant, who in the European case had narrowly escaped becoming himself an addressee of an infringement decision. In sentencing the main defendant, the [Court] considered as aggravating factors that he was the de facto head of the undertaking and that the infringements had taken place at a time when the appeal of the very same undertaking to the European courts in the Pre-insulated Pipes Cartel case was still pending. The Court also considered the loss inflicted, estimated to be €65,000 (using a 5 per cent overcharge assumption), as ‘substantial’ and an aggravating factor. On the other hand, the defendant’s attempts to compensate victims were treated as a mitigating factor. The Court considered that a final prison sentence of 34 months, i.e., two years and ten months, and an additional fine of €100,000, was adequate and sufficient punishment for the main defendant. Pursuant to s 56(2) of the Criminal Code, a prison sentence exceeding two years cannot be suspended. Accordingly, the ‘King of the Pipes’ was sentenced to serve his term in prison. Two of his codefendants were sentenced to suspended prison terms of two years each, and the third co-defendant to a suspended prison term of one year” (Wagner-von Papp 2010: 9-10).”

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Total SA is totally corrupt. The French petroleum firm Total is the corporate King of Cartel Recidivism. During 1990-2009, Total amassed the greatest number of participations of in international cartels, and the rate of increase has not slackened. Buyers who deal with Total should be more cautious than usual when dealing with this company, and antitrust authorities should be extra vigilant when monitoring markets in which Total is present.

THE FRENCH PETROLEUM FIRM  
TOTAL IS THE CORPORATE  
KING OF CARTEL RECIDIVISM.

On the other hand, Akzo Nobel is no longer a trustworthy partner in cartel crimes. How do we know? Akzo was at one time an avid participant in the sport of price-fixing, but in the past few years Akzo has joined the leniency bandwagon. In the past several years, Akzo has been granted at least six leniency applications (and others may be in the works). It is no longer a trustworthy partner in crime.

## XI. Discussion

This analysis of international-cartel recidivism is a snapshot taken retrospectively from the vantage point of January 2010. Although the sample pools 20 years of cartel activity, it has some of the disadvantages of a cross-sectional data set. As soon as a company steps over the line from participating in one cartel to partic-

icipating in two, it becomes branded as a recidivist for the entire 20 years. Unlike human recidivists, though it is relatively uncommon, a company guilty of only one case of price-fixing may become a recidivist by acquiring another business with a history of price-fixing.

There seems to be no way around counting corporate recidivism in this manner, except in a few temporal analyses of the data found above. Extending the data collection further backward in time would likely have only a small impact on the patterns observed. Going back 50 years looking at U.S. convictions would yield few fresh examples of international cartels; the EC found few infringements “with fines” prior to 1990; and all other antitrust authorities were inactive in fining cartels before 1990.

The objective of this paper was to look for empirical regularities in the sample of 389 recidivists that had engaged in international price-fixing in the past 20 years. A few have been found. Recidivists are overwhelmingly headquartered in northern Europe or Japan, and they tend to be highly diversified multinational firms that sell homogeneous producer goods. The skills acquired from participating in multiple price conspiracies are transferrable across divisional lines at very low marginal costs. Those acquired skills include identifying feasible collusive opportunities, negotiating mutually satisfactory deals, diplomatically dealing with partners when no enforceable contract exists, and flying below the radars operated by the antitrust authorities.

There are not a lot of hopeful signs in the data analyzed herein. The relative frequency of cartels discovered with recidivists as members did fall slightly after 2004 compared to the previous ten years. One can find the occasional heavy recidivist that has converted to a life of leniency application. But on the whole, recidivism rates appear to be rising. This observation seems to justify a continuation of policies that impose brutally higher fines and other effective sanctions on cartel recidivists. ▼

RECIDIVISTS ARE OVERWHELMINGLY HEADQUARTERED IN NORTHERN EUROPE OR JAPAN, AND THEY TEND TO BE HIGHLY DIVERSIFIED MULTINATIONAL FIRMS THAT SELL HOMOGENEOUS PRODUCER GOODS.

Company	Participation in Cartels			Subtotal	HQ Nation
	Cartel Ended Before 2000	Cartel Ended 2000-2009	Total Cases		
Total SA	3	24	27		FR
Sanofi-Aventis SA	14	8	22		FR
BASF	4	17	21		DE

**Table 1**

Fifty-two Leading Recidivists, 1990–2009

Table 1,  
continued

Company	Participation in Cartels			Subtotal	HQ Nation
	Cartel Ended Before 2000	Cartel Ended 2000-2009	Total Cases		
Lafarge SA	5	16	21		FR
Bayer AG	15	5	20		DE
Hitachi Ltd.	2	18	20	6	JP
Holcim Ltd.	2	17	19		CH
Akzo Nobel	4	14	16		NL
BP Amoco	4	14	16		UK
A.P. Møller - Mærsk A/S	12	3	15		DK
ENI (Ente Nazionale) SpA	4	11	15		IT
ExxonMobil	3	12	15	12	US
Mitsubishi Corp.	4	10	14		JP
ABB Asea Brown Boveri	2	11	13		CH/SE
Samsung Group	0	13	13		KR
Cemex SAB	1	11	12		MX
Nestlé	3	9	12		CH
Siemens AG	1	11	12		DE
Toshiba Corp.	1	11	12		JP
Bouygues SA	1	10	11		FR
Buzzi Unicem	3	8	11		IT
Hyundai Corp.	3	8	11		KR
LG	0	11	11		KR
Sony Corp.	1	9	10		JP
ThyssenKrupp AG	5	5	10		DE
United Technologies Corp.	1	9	10	26	US
ArcelorMittal SA	2	7	9		LX
Degussa AG (now RAG AG)	6	3	9		DE

Continued on next page

## Participation in Cartels

Table 1,  
continued

Company	Cartel Ended Before 2000	Cartel Ended 2000-2009	Total Cases	Subtotal	HQ Nation
Phillips Electronics	1	8	9		NL
Vinci SA	1	8	9		FR
Vodafone Group PLC	1	8	9		UK
Crompton Corp. (renamed Chemtura)	1	7	8		US
DuPont	3	5	8		US
Johnson & Johnson	1	7	8		US
Kone Oyj	0	8	8		FI
Linde Group	3	5	8		DE
Merckle GmbH (Heidelberg Cement parent)	2	6	8		DE
Stora Enso Oyj	4	4	8		FI
ADM Co.	6	1	7		US
AIG (American Intl. Group)	0	7	7		US
Air Liquide	4	3	7		FR
Alstom SA	0	7	7		FR
Danone	5	2	7		FR
Heijmans NV	1	6	7		NL
Repsol YPF SA	1	6	7		ES
Schindler Holding AG	0	7	7		CH
Solvay SA	5	2	7		BE
Strabag SE	0	7	7		AT
Suez SA	0	7	7		FR
Sumitomo Chemical Co. Ltd.	5	2	7		JP
UPM Kymmene	0	7	7		FI
Vivendi SA	0	7	7		FR
Total of above = 52 companies	147	429	576		

a) Cases are observations of cartel-company combinations.

b) Assumes that all anonymous firms are counted only once, which is a slight overstatement.

**Table 2**

Selected Characteristics of Corporate Cartel Recidivists and All Cartelists, 1990–2009

Characteristics	Participation in Cartels				
	(1)	(2)	(3)	(4)	(5)
	Corporate Recidivists	All Corporate Cartelists	Recidivist Distribution	All Distribution	Ratio (3)/(4)
	<i>number</i>		<i>percent</i>		
<b>Numbers:</b>					
Number of cases, firms known by name <sup>a</sup>	1548	3663	—	—	42.3
Number of unique firms known by name	389	2115	—	—	18.4
Number of firms, including anonymous	389	6525 <sup>b</sup>	—	—	6.0
<b>Cases by Industry Group:</b>					
Agricultural raw materials	6	60	0.4	1.6	0.25
Forestry, timber, roundwood	3	3	0.2	0.1	2.00
Minerals	18	46	1.2	1.3	0.99
Construction	105	324	6.8	8.9	0.76
Food and beverage mfg.	75	221	4.8	6.0	0.80
Tobacco mfg.	3	14	0.2	0.4	0.50
Textiles	8	26	0.5	0.7	0.71
Clothing	0	0	0	0	0
Wood, lumber	3	22	0.2	0.6	0.33
Furniture	0	4	0	0.1	0
Paper and printing	49	119	3.2	3.3	0.97
Organic chemicals, food and agricultural uses	107	143	6.9	3.9	1.77
Organic chemicals, other	146	260	9.4	7.1	1.32
Inorganic chemicals, fertilizers	36	101	2.3	2.8	0.82

*Continued on next page*

Table 2,  
continued

Characteristics	Participation in Cartels				
	(1)	(2)	(3)	(4)	(5)
	Corporate Recidivists <i>number</i>	Corporate Cartelists All <i>number</i>	Recidivist Distribution <i>percent</i>	All Distribution <i>percent</i>	Ratio (3)/(4)
Petroleum products	52	72	3.4	2.0	1.70
Rubber and plastic	79	151	5.1	4.1	1.24
Stone, clay, graphite, glass products	127	295	8.2	8.1	1.01
Primary metals	21	35	1.4	1.0	1.40
Fabricated metal products	35	195	2.3	5.3	0.43
Machinery, including electrical and parts	113	213	7.3	5.8	1.26
Electronic devices, including computers	61	104	3.9	2.8	1.39
Instruments, miscellaneous manufacturing	41	96	2.7	2.6	1.04
Transport services	138	323	8.9	8.8	1.01
Communication services	50	100	3.2	2.7	1.19
Wholesale, retail	147	303	9.5	8.3	1.14
Finance, insurance, banking	52	238	3.4	6.5	0.52
Water and energy distribution	22	31	1.4	0.9	1.56
Other services	51	164	3.3	4.5	0.73
<b>Cases by Product Type:</b>	1548	3363	100.0	100.0	—
Raw material	20	78	1.3	2.3	0.57
Industrial intermediate input	739	1544	47.7	45.9	1.04
Industrial capital good	103	143	6.7	4.2	1.60
Generic final consumer good	63	228	4.1	6.8	0.60

Table 2,  
continued

Characteristics	Participation in Cartels				
	(1)	(2)	(3)	(4)	(5)
	Corporate Recidivists	Corporate Cartelists All	Recidivist Distribution	All Distribution	Ratio (3)/(4)
	number		percent		
Differentiated consumer good	119	276	7.7	8.2	0.94
Services, including construction	504	1391	32.6	41.4	0.79
<b>Geographic Location:</b>	1538	3363	100.0	100.0	1.00
NORTH AMERICA	166	524	10.8	15.6	0.69
WESTERN EUROPE (includes Central Europe)	519	1428	33.8	42.5	0.80
EASTERN EUROPE	137	239	8.9	7.1	1.25
ASIA	113	365	7.4	10.9	0.68
LATIN AMERICA (includes Mexico)	55	119	3.6	3.5	1.03
OCEANIA	15	48	1.0	1.4	0.71
AFRICA	88	191	5.7	5.7	1.00
GLOBAL (2 or more continents)	445	753	28.9	22.4	1.29
<b>Cases by Type of Conduct:</b>	1538	2810	100.0	100.0	1.00
Primarily bid rigging	631	1226	41.0	43.6	0.94
Classic price fixing	907	1583	59.0	56.3	1.05
<b>Trends: Number discovered over time</b>	1538	3555	100.0	100.0	1.00
Before 1990	31	85	2.0	2.4	0.83
1990-94	113	262	7.4	7.4	1.00
1995-99	247	443	16.1	12.5	1.29
2000-04	405	668	26.3	18.8	1.40
2005	155	390	10.1	11.0	0.92
2006	150	326	9.8	9.2	1.07

Continued on next page

Table 2,  
continued

Characteristics	Participation in Cartels				
	(1)	(2)	(3)	(4)	(5)
	Corporate Recidivists	Corporate Cartelists	Recidivist Distribution	All Distribution	Ratio (3)/(4)
	<i>number</i>		<i>percent</i>		
2007	150	317	9.8	8.9	1.10
2008	177	397	11.5	11.2	1.03
2009	120	391	7.8	11.0	0.71
<b>Size of Cartel (Participants):</b>	1543	3651	100.0	100.0	1.00
2	88	192	5.7	5.3	1.08
3	119	200	7.7	5.5	1.40
4	198	377	12.8	10.3	1.24
5	159	321	10.3	8.8	1.17
6	129	295	8.4	8.1	1.04
7	78	183	5.2	5.0	1.04
8	134	282	8.7	7.7	1.13
9	47	154	3.1	4.2	0.74
10-20	492	1160	31.9	31.8	1.00
21+	99	487	6.4	13.3	0.48
<b>Duration of Cartels by Cases: c</b>	1382	3213	100.0	100.0	1.00
Less than 1 year	114	282	7.4	8.8	0.84
1-1.99 years	117	315	7.6	9.8	0.78
2-2.99 years	132	293	8.6	9.1	0.95
3-3.99 years	138	389	8.9	12.1	0.73
4-4.99 years	157	323	10.2	10.1	1.01
5-5.99 years	98	263	6.4	8.2	0.78
6-6.99 years	143	357	9.3	11.1	0.84
7-7.99 years	68	171	4.4	5.3	0.83
8-9.99 years	102	190	6.6	5.9	1.12
10-14.99 years	175	314	11.3	9.8	1.15

Table 2,  
continued

Characteristics	Participation in Cartels				
	(1)	(2)	(3)	(4)	(5)
	Corporate Recidivists	Corporate Cartelists	Recidivist Distribution	All Distribution	Ratio (3)/(4)
	number		percent		
15-20 years	84	200	5.4	6.2	0.87
20 or more years	59	115	3.8	3.6	1.06

a) Cases are observations of cartel-company combinations. Almost half (48%) of the cartelists in the full data set are anonymous because many of the world's antitrust authorities (e.g., Germany) fail to reveal names of sanctioned companies, press reports do not supplement the names of all cartelists, and some (the United States) do not reveal the name of amnesty recipients. This paper for obvious reasons ignores anonymous cartelists.

b) Assumes that all anonymous firms are counted only once, which is a slight overstatement.

c) Several cartels are double counted.

- 1 Penalties associated with specific deterrence will be just high enough to discourage a legal person from repeating the same crime. Under general deterrence, persons contemplating a property crime will observe the penalties imposed on others for similar crimes, form conjectures about the likely future costs of the crime, and decide against the illegal conduct. General deterrence is also the goal of administrative-law jurisdictions like the European Union (EU) that regard hard-core price-fixing as a serious infringement of market rules rather than crimes strictly defined.
- 2 Perhaps the best evidence for the ubiquity of acceptance of optimal deterrence principles is a 2005 survey of leading competition-law authorities that are members of the International Competition Network (ICN 2005: 49-52). The antitrust authorities participating were: Australia, Brazil, Canada, European Union, France, Germany, Hungary, Ireland, Japan, Mexico, Pakistan, Russia, South Africa, Spain, Sweden, Switzerland, United Kingdom, United States of America, and Venezuela. All 19 antitrust agencies surveyed agreed with the following statement: "*The principal purpose of sanctions in cartel cases is deterrence.*"
- 3 JAMES HENSLIN, *SOCIAL PROBLEMS: A DOWN-TO-EARTH APPROACH* (2008).
- 4 MARVIN ZUCKERMAN, *PSYCHOBIOLOGY OF PERSONALITY* (1991).
- 5 Steven L. Friedlander, *Using Prior Corporate Convictions to Impeach*, CAL. L. REV. 78, 1313 (October 1990).
- 6 MARSHALL B. CLINARD & PETER C. YEAGER, *CORPORATE CRIME* (1980).
- 7 Proprietorships with few employees are often characterized as having the temperaments of their owner-managers. Partnerships may develop practices that reflect the personalities of their dominant partners. Although rare, small companies and partnerships have been driven out of business by severe legal penalties (e.g., Arthur Anderson, the accountant to Enron). Large corporations may be less likely to take on the personality of their founders or CEOs, but it may happen. Do some large corporations

have difficulties learning from their past mistakes? This paper demonstrates that there is wide variation in corporations' ability to avoid the mistakes of the past; in that sense, some firms display a kind of corporate pathology.

- 8 Wouter P.J. Wils, *The European Commission's 2006 Guidelines on Antitrust Fines: A Legal and Economic Analysis*, *WORLD COMPETITION L. & ECON. REV.* 30 (June 2007), available at SSRN: <http://ssrn.com/abstract=962654>.
- 9 Douglas H. Ginsberg & Joshua D. Wright, *Antitrust Sanctions*, *INT'L J. COMPETITION L.*, (forthcoming 2010).
- 10 See Yuliya Bolotova, John M. Connor, & Douglas J. Miller, *Cartel Stability: An Empirical Analysis* (October 2006), available at SSRN: <http://ssrn.com/abstract=939078>.
- 11 Andrew B. Miller, *What Makes Companies Behave? An Analysis of Criminal and Civil Penalties Under Environmental Law*, SSRN Working Paper. (December 2005).
- 12 William J. Kolasky, *Antitrust Compliance Programs: The Government Perspective*, speech at the Corporate Compliance 2002 Conference Practising Law Institute, San Francisco, CA (July 12, 2002), available at <http://www.justice.gov/atr/public/speeches/224389.htm>.
- 13 From 1987 to early 2005, the USSGs were mandatory for federal prosecutors and judges. In January 2005 a Supreme Court ruling made the Guidelines voluntary, but subsequent experience has shown that they are still being followed by the judiciary. In practice the DOJ typically requests waivers for co-operating cartellists that result in large fine discounts below the minimum fines specified in the Guidelines. Nevertheless, because the Guidelines are the starting point for calculating sanctions, ultimately the fines paid correlate with the Guidelines ranges.
- 14 "... in *Interbrew/Alken Maes*, which involved two different cartels, Danone was reprimanded for the fact that it had participated in similar anti-trust infringements on two previous occasions and the fact that these previous infringements occurred in a different sector (flat glass) was deemed irrelevant," 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*, SSRN Working Paper (February 2005), available at <http://ssrn.com/abstract=671794>.  
  
Danone's fine was raised 50 percent because of its recidivism.
- 15 ... the Court of First Instance has held that 'it must be recalled to mind that, for the purpose of determining the amount of the fine, the Commission must ensure that its action has the necessary deterrent effect [...]. Recidivism is a circumstance that justifies a significant increase in the basic amount of the fine. Recidivism constitutes proof that the sanction previously imposed was not sufficiently deterrent.'  
  
Wils, *supra* note 8, quoting Judgment of the Court of First Instance of 30 September 2003 in Case T-203/01 *Michelin v Commission* [2003] ECR II-4071, ¶ 293.
- 16 John M. Connor & Douglas J. Miller, *Determinants of U.S. Antitrust Fines of Corporate Participants of Global Cartels*, paper presented at the 7<sup>th</sup> International Industrial Organization Conference, Boston, (April 3-5, 2009). John M. Connor & Douglas J. Miller, *Determinants of EC Fines for Members of Global Cartels*, paper presented at the 3<sup>rd</sup> Conference on "The Economics of Competition Law," sponsored by LEAR (Laboratorio di Economia, Antitrust, Reglamentazione), Rome, (June 25-26, 2009), available at <http://www.learlab.com/learconference/documents.html>.
- 17 Geradin & Henry, *supra* note 14.
- 18 I refer to the outpouring of articles that flow from Becker on crime and deterrence, see Gary S. Becker, *Crime and punishment: An economic approach*, *J. POL. ECON.* 76, 169-217 (1968). For surveys of this branch of knowledge, see Nuno Garoupa, *The theory of optimal law enforcement*, *J. ECON. SURVEYS*

- 11, 267–295, (1967) and A. M. Polinsky & S. Shavell, *The economic theory of public enforcement of law*, J. ECON. LITERATURE 38, 45-76 (2000).
- 19 Rubenstein, *An optimal conviction policy for offenses that may have been committed by accident*, APPLIED GAME THEORY (S. J. Brams, A. Schotter, & G. Schwodiauer, Eds), (1979).
- 20 A.M. Polinsky & D. L. Rubinfeld, *A model of optimal fines for repeat offenders*, J. PUBLIC ECON. 46, 291–306 (1991).
- 21 Winand Emons, *Escalating penalties for repeat offenders*, INT'L REV. LAW AND ECON 27, 170–178, (2007).
- 22 *Id.*, at 171.
- 23 Murat C. Mungan, *Repeat Offenders: If They Learn, We Will Punish Them More Severely*, INT'L REV. LAW AND ECON 30, 173-177 (2010).
- 24 There are previous analyses in which learning occurs, but in them, according to Mungan (*Id.*), the offenders cannot form conjectures about the probability of detection.
- 25 *Casablanca*, Dir. Michael Curtiz. Perf. Humphrey Bogart, Ingrid Bergman, Claude Raines, Conrad Veidt, Peter Laurie, Sidney Greenstreet. Warner Brothers, 1943.
- 26 The most recent review of U.S. antitrust policies contains no reference to recidivism, Antitrust Modernization Commission: Report (April 2007), available at ([http://govinfo.library.unt.edu/amc/report\\_recommendation/amc\\_final\\_report.pdf](http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf)).
- 27 Jeremy Lever, *Opinion: Whether and if so how, the EC Commission's 2006 guidelines on setting fines for infringements of Arts. 81 and 82 of the EC are fairly subject to serious criticism*, §18, German Employers' Association (BDI): Law and Public Procurement series (2009).
- 28 Wils, *supra* note 8 at 21-27.
- 29 The purposes of cartel fines are: "Fines should have a sufficiently deterrent effect, not only in order to sanction the undertakings concerned (specific deterrence) but also in order to deter other undertakings from engaging in, or continuing, behaviour that is contrary to Articles 81 and 82 of the EC Treaty (general deterrence)" (Guidelines on the method of setting fines imposed pursuant to Article 23(2)(a) of Regulation No 1/2003 (2006/C 210/02). OFFICIAL JOURNAL OF THE EUROPEAN UNION: C 210/2-C210/4.: §4, (September 1, 2006). Wils, *supra* note 8, chooses to use the term deterrence in the sense of utter abolishment of a crime. He clearly distances himself from the Beckerian tradition of optimal deterrence, which takes the position that some small amount of law-breaking is optimal. It is a matter of conjecture as to whether his is a consensus view of the Commission's Legal Service or of the Commission more broadly.
- 30 Alan Riley, *The Modernisation of EU Anti-Cartel Enforcement: Will the Commission Grasp the Opportunity?* Brussels: Centre for European Policy Studies, Special Report. (January 2010), available at [www.ceps.eu](http://www.ceps.eu).
- 31 Wils, *supra* note 8 at 26.
- 32 Kristina Nordlander, *The Commission's Policy on Recidivism: Legal Certainty for Repeat Offenders?* COMPETITION L. REV 2, 55-68(August 2005), available at <http://www.clasf.org/CompLRev/Issues/Vol2Issue1Article3.pdf>.

- 33 Nordlander cites one case in which the Commission looked back 40 years. In principle, the EC could look back to the first EU cartel case, which was decided in 1962. The idea of granting state charters that conferred corporate immortality seems to have originated in the United States in the 1880s, (*Id.*)
- 34 Wils, *supra* note 8, at 27.
- 35 In fact, the most recent EC decisions have reduced the recidivism penalty to about 30 percent of affected sales per instance, rather than 60 percent.
- 36 Clinard & Yeager, *supra* note 6 at 130.
- 37 *Id.* at 129-131.
- 38 Cindy R. Alexander & Mark A. Cohen, *Why Do Corporations Become Criminals? Ownership, Hidden Actions, and Crime as an Agency Cost*, J. CORP. FIN 5, 1-34 (March 1999).
- 39 Willam F. Shughart & Robert D. Tollison, *Antitrust Recidivism in Federal Trade Commission Data: 1914-1982*, PUBLIC CHOICE AND REGULATION: A VIEW FROM INSIDE THE FEDERAL TRADE COMMISSION (Robert J. MacKay et al. eds.) (1987).
- 40 JAMES M. CLABAULT & MICHAEL K. BLOCK, SHERMAN ACT INDICTMENTS: 1955-1980, at 905-11 (1981).
- 41 Dan R. Dalton & Idalene F. Kesner, *On the Dynamics of Corporate Size and Illegal Activity: An Empirical Assessment*, J. BUS. ETHICS 7, 861-870 (1988).
- 42 John H. Shenefield, *Compliance Programs As Viewed from the Antitrust Division*, ANTITRUST L.J. 48, 79 (1979).
- 43 Maria Bigoni, Chloe Le Coq, & Giancarlo Spagnolo, *Fines, Leniency and Rewards in Antitrust: an Experiment*, CEPR Discussion Paper No. 7417. (2009).
- 44 S. S. Simpson & C.S. Koper, *Deterring Corporate Crime*, CRIMINOLOGY 30, 347-375 (1992).
- 45 Bolotova et. al., *supra* note 10.
- 46 Miller, *supra* note 11.
- 47 For more details on sources and methods of data collection, see John M. Connor & Gustav Helmers, *Statistics on Modern Private International Cartels*, Working Paper 07-01: American Antitrust Institute (January 2007), available at <http://www.antitrustinstitute.org/recent2/567.pdf>.
- 48 Sanctions are overwhelmingly corporate fines, but also include consent decrees or warnings from antitrust authorities. Payments made by firms that were defendants in private antitrust suits (usually class actions with judicial supervision), are also classified as cartel sanctions even if no fines were also imposed.
- 49 In contrast the U.K. Office of Fair Trade is punctilious in naming all sanctioned companies, even when there are many and some are small partnerships.
- 50 Jean-Claude Bosche & E. Woodrow Eckard, *The Profitability of Price Fixing: Evidence from Stock-Market Reaction to Federal Indictments*, REV. ECON. & STAT. 73, 309 (1991).
- 51 Connor & Helmers, *supra* note 47.

- 52 To be clear, this study and the present paper as well do not count multiple *convictions* for the same cartel as repeated violations. If a company was fined in Canada and the United States and paid into class-action settlements in both countries, those four convictions do not qualify as four counts of recidivism. What is being counted as recidivism is a firm's participations in multiple cartels—separate markets in almost all cases.
- 53 In the PICs, a case is a unique combination of a cartel market and a company name.
- 54 In the PICs, there are 3,663 cases with companies identified by name, both recidivists and non-recidivists. However, some antitrust authorities (e.g., Germany and the Netherlands) choose to omit the names of some or all of the members of convicted cartels, especially if the total number of companies is large; there were 2,865 cases of anonymous cartelists in the PICs at the end of 2009.
- 55 There is evidence that a European vitamins cartel operated in the late 1980s.
- 56 Connor, *supra* note 47.
- 57 *Id.* at 12-13.
- 58 The evidence on convicted cartelists suggests that rogue managers are in a minority. Cartel executives tend to have titles that place them in a company's top layer of management.
- 59 There is narrative evidence that this happened within Archer Daniels Midland and Hoffmann La Roche, JOHN M. CONNOR, *GLOBAL PRICE FIXING*, 2nd paperback ed. (2008).
- 60 This will be difficult. Antitrust decisions of most antitrust authorities lack details about the size of sanctioned firms (those of the EC are an exception). Most convicted cartelists, if named at all, are non-traded firms or are subsidiaries of traded firms.
- 61 If a cartel was prosecuted in multiple legal venues, the number of participants is the union of the firms sanctioned by each authority. For example, in *Graphite Electrodes* the United States and the EC both fined four firms, but each also fined one unique firm. Thus, the number of participants is recorded as six.
- 62 Margaret C. Levenstein & Valerie Y. Suslow *What Determines Cartel Success?* J. ECON. LIT. 64 at 43-95 (March 2006).
- 63 Florian Wagner-von Papp, *Criminal Antitrust Law Enforcement in Germany: 'The Whole Point is Lost If You Keep it a Secret! Why Didn't You Tell the World, Eh?'*, SSRN Working Paper. (April 5, 2010), available at SSRN: <http://ssrn.com/abstract=1584887>.
- 64 *Landgericht München II* (LG Munich II) 3 May 2006, W5 Kls 567 Js 30966/04, BeckRS 2008, 00736. In Germany, prison sentences can be imposed for bid-rigging.
- 65 *Preinsulated Pipe Cartel* [1999] OJ L24/1.

# Screens for Conspiracies and Their Multiple Applications

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*Rosa M. Abrantes-Metz & Patrick Bajari\**

A screen is a statistical test designed to detect conspiracies aimed at illegally manipulating a market. Competition authorities, academics, and consultants have designed a variety of screens to detect competition problems, and the use of such screens has been increasing. In this paper, we first describe screens designed to detect bid-rigging, price-fixing, market-allocation schemes, and commodity-market manipulation. Next, we discuss the ways in which screens can be used by plaintiffs and defendants in antitrust cases. These include: (i) class certification, (ii) motions to dismiss after *Twombly*; (iii) estimating the effects and damages of collusion; (iv) assisting companies in deciding when and whether to file a leniency application; (v) assisting in disproving the existence of a conspiracy and manipulation or establishing its immateriality; and (vi) assisting managers in large companies to monitor for data manipulation (e.g. falsified reimbursement or accounting statements) and price-fixing in purchasing.

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## I. Introduction

Competition authorities pursue price-fixing conspiracies in three stages: detection, prosecution, and penalization. In the United States and Europe, antitrust authorities historically have relied on leniency applications for the detection stage. Leniency programs have identified cartels in numerous industries including vitamins, dynamic random access memory (“DRAM”) chips, graphite electrodes, and fine art auctions. As a result, over \$2.5 billion dollars in fines have been assessed in the United States alone from 1997 to 2004.<sup>1</sup>

While leniency programs have been a success for antitrust agencies, some collusion remains undetected. Indeed, the very fact that leniency applications continue to be filed at high rates is evidence that collusion still occurs. Moreover, leniency programs likely reflect a bias towards uncovering conspiracies close to the breaking point, meaning that the most successful and durable cartels likely remain undetected. Recognizing the limitations of leniency programs, many antitrust agencies have started to search for alternative approaches to detecting conspiracies. One such approach is screening.

A screen is a statistical test designed to identify industries where competition problems exist and, in such industries, which firms are involved in a conspiracy. Screens use commonly available data such as prices, costs, estimated market shares, or bids, and then use statistical tools to identify patterns in the data that are anomalous or highly improbable. Broadly speaking, collusion screens used in the literature employ two strategies.

RECOGNIZING THE LIMITATIONS OF LENIENCY PROGRAMS, MANY ANTITRUST AGENCIES HAVE STARTED TO SEARCH FOR ALTERNATIVE APPROACHES TO DETECTING CONSPIRACIES. ONE SUCH APPROACH IS SCREENING.

The first is to search for improbable events. This type of screen is similar to looking for a cheat in a casino. For example, the probability that a gambler at a Las Vegas casino will place a winning bet in roulette is roughly 0.5 percent. During her shift, a roulette dealer may see a handful of players win five, six, or even seven times in a row. However, the probability of winning twenty times in a row is around one in one million. If a pit boss sees this occur, he may not be able to prove that cheating has occurred, but he would be well advised to watch closely or risk losing a lot of money. One set of collusive screens generalizes this idea by looking for events that are improbable unless firms in the industry have coordinated their actions.

The second type of screen uses the concept of a control group. In the 1980s, organized crime in New York City operated a concrete club that rigged bids on contracts over \$2 million. During this period, the price of concrete was 70 percent higher in New York City than other U.S. cities. While it is true that the price of many goods and services is higher in New York City, few prices are 70 percent higher than in other large cities. Prices that are anomalous compared to

other markets suggest a competition problem. In this simple example, a control group consisting of prices in other cities is used as a basis for comparing prices in New York.

Below, we describe how economists have implemented screens to search for competition problems. The examples we discuss are bid-rigging, price-fixing, market-allocation schemes, and manipulating commodities markets.

Screens are not only useful to antitrust agencies; they can also be powerful tools for plaintiffs and defendants in antitrust cases. We will describe the multiple uses screens have (i) during class certification, (ii) for motions to dismiss after *Twombly*; (iii) estimating the effects and damages of collusion; (iv) assisting companies in deciding when and whether to file a leniency application; (v) assisting in disproving the existence of a conspiracy and manipulation or establishing its immateriality; and (vi) assisting managers in large companies to monitor for data manipulation (e.g. falsified reimbursement or accounting statements) and price-fixing in purchasing.

SCREENS ARE NOT ONLY USEFUL  
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It is important to emphasize that screens do not *prove* collusion. Screens isolate outcomes that are improbable or anomalous. Screens will exhibit both false positives and false negatives. However, this does not mean that screens lack value. Doctors regularly screen their patients for diseases even though their methods exhibit both false positives and negatives. Even so, patients are screened because the expense of testing all patients for a rare disease is prohibitive. The process of screening identifies a subset of patients that are at a higher risk than others, which then allows the doctor to engage in the more extensive testing for just a selective few. Analogously, a good antitrust screen will narrow the set of possible conspiracies to a manageable few that merit further review.

A good screen should possess the following properties: (i) it should minimize the number of false positives and negatives; (ii) it should be easy to implement; (iii) it should be costly for firms to disguise collusive behavior; and (iv) it should have empirical support.

## II. Examples of Screens

In this section, we describe several screens and their empirical applications. We start with the example of competitive bidding because the strict rules of competitive bidding help to identify colluders. Next, we discuss screens when only price data are available. These include variance screens, which search for pockets of high or low variances in prices as a flag for competition problems. Finally, we discuss screens based on Benford's Law, which describes the rates at which certain digits occur in many data sets.

## A. BID-RIGGING

Bid-rigging in competitive tenders is a productive setting to apply screens for three reasons. First, competitive tenders account for a large volume of economic output. Public sector procurement, which often uses some form of competitive bidding, accounts for about 15 percent of world output. In addition, competitive bidding is widely used in financial markets, privatization of public assets, real estate, and many other transactions. Second, bid-rigging is a common antitrust offense. For example, during the 1980s, bid-rigging accounted for more than half of the criminal cases filed by the Department of Justice's Antitrust Division ("DOJ"). Third, markets that use competitive bidding are frequently rich in data. In many countries, statutes require the public disclosure of bids.

THERE IS A LARGE BODY OF EMPIRICAL LITERATURE ON COLLUSION IN AUCTIONS THAT IMPLEMENTS VARIOUS TYPES OF SCREENS.

There is a large body of empirical literature on collusion in auctions that implements various types of screens.<sup>2</sup> While these papers span a wide variety of industries, researchers have identified common patterns when collusion is known or suspected. We describe these patterns below.

## B. BID-RIGGING SCREENS BASED ON IMPROBABLE EVENTS

The first set of screens looks for improbable events in sealed bid auctions. In these settings, firms submit their bids simultaneously. These bids are then read at a fixed date. In the public sector, the contract is typically awarded to the lowest bidder. If firms do not collude, they cannot condition their bids on the bids of other firms. As a result, we should expect that the bids would be independent after we control for information that is observed by all bidders, such as variables that influence cost or market power.

On the other hand, if firms collude, they need to coordinate their actions. Frequently, this coordination destroys the independence of the bids and can be detected through the use of statistical hypothesis testing. Collusion is suspected when bids are "too correlated" with each other to be the result of independent actions by bidders. Searching for identical bids is a limiting case of this sort of screen. A famous example is bids received by the Tennessee Valley Authority to install conductor cables in the 1950s. Seven firms submitted identical bids of \$198,438.24. This is analogous to a gambler making twenty winning bets in a row at the roulette wheel. The chances of seven bidders, acting independently, arriving at bids that agree to eight significant digits is almost zero and a very strong signal that firms have explicitly or implicitly arrived at a mechanism for coordinating bids.

We illustrate this screen with an example involving bids to supply school milk in Ohio between 1980 and 1990.<sup>3</sup> In Ohio, firms submitted sealed bids for contracts to supply schools with pint-size portions of milk. The bidders were typical-

ly processors or distributors of milk, and school milk typically represented less than 10 percent of their annual revenues. Based on court evidence, Robert Porter and Douglas Zona argued that a bidder's costs are easily explained by a small number of variables, which are readily observed and include the price of raw milk and transportation costs, which represent 7 percent of total costs. Competition in the school milk market is localized due to transportation costs. Firms that are close to a particular school have a cost advantage because of shorter delivery routes.

Porter and Zona constructed econometric models of submitting a bid and bid levels. Economic theory suggests that both decisions should depend on two factors. The first is costs, which the authors measured using data on the distance between a public school, the bidder's location, and the number of deliveries made by the bidder. The second is local market power, which the authors controlled for by variables measuring the locations of competing firms.

The first screen proposed by Porter and Zona examined the correlation in bidders' entry decisions. After controlling for information that was publicly observed at the time of bidding, the authors found that the bidding decisions of some firms in the sample was too high to be explained by pure randomness, which supported the hypothesis that many accused colluders coordinated their decisions to submit bids.

Next, Porter and Zona constructed econometric models that express bids as a function of costs (controlled for by the distance between a public school, the bidder's location, and the number of deliveries made by the bidder) and local market power (controlled for by variables measuring the locations of competing firms). Porter and Zona found that bids for the non-colluding firms were explained using these regression models while, in comparison, the bids of cartel members were too highly and persistently correlated to be explained by the data. Porter and Zona concluded that it was difficult to reconcile this high and persistent correlation in bids with the hypothesis that firms were bidding independently. This high degree of correlation is similar to a gambler in a casino who has "correctly guessed" which bet to place in roulette twenty times in a row. These events appear to be too improbable to have occurred at random.<sup>4</sup>

THEREFORE, A SECOND SCREEN  
PROPOSED IN THE LITERATURE  
IS TO DETERMINE HOW WELL  
BIDS REFLECT COSTS.

### C. BID-RIGGING SCREENS BASED ON CONTROL GROUPS

A second prediction of economic theory is that bids should reflect costs in reasonably competitive markets. The act of collusion, on the other hand, attenuates the relationship between bids and costs so that conspirators can earn profits above a normal competitive rate. Therefore, a second screen proposed in the literature is to determine how well bids reflect costs. In our motivating example, one of the pieces of evidence we used to help make our case about

the concrete club in New York City was that the cost of concrete there was 70 percent higher than in other U.S. cities. In this example, costs in other cities are a control group for the costs in New York.

Patrick Bajari (a co-author of this article) and Lixin Ye<sup>5</sup> examined bids by highway contractors in the upper Midwest during the 1990s. Three of the firms in their sample had been convicted of collusion in the last decade. However, market observers believed that the industry was free of a market-wide conspiracy to rig bids. The authors used bids for a type of road repair known as seal coating. The standard job in their data was fairly small—the winning bids are approximately \$175,000. State highway departments prepare cost estimates before bidding occurs. These cost estimates are largely based on bids made in other geographic markets. Companies like McGraw Hill sell “blue books,” which are essentially price indexes for particular construction tasks with market-specific adjustments. Note that the ratio of the winning bid to the cost estimate is almost equal to one with a fairly small standard deviation. This suggests that bids are comparable to properly deflated bids from other markets. The authors took this as positive evidence that most bids in the market are competitive.

**Table 1**

Summary  
Statistics from  
Bajari and Ye

Variable	# of Observations	Mean	Std Deviation
Total Bid	441	175,000	210,000
Winning Bid/Cost Estimate	139	1.0031	0.1573
Distance of Winning Firm	139	188.67	141.51
Distance of Second Lowest Bidder	139	213.75	152.01
Backlog of Winning Bidder	131	0.3376	0.3160
Backlog of Second Lowest Bidder	131	0.4326	0.3435

Distance is an important determinant of costs in seal coating. Bajari and Ye used mapping software to measure the travel time in minutes from a bidder’s location to the project site. The table above shows that the winning bidder is closer than the second lowest bidder, which is consistent with bids increasing in transportation costs, and supporting evidence of a competitive market.

Backlog is another important determinant of costs. Most firms in the data are small, with annual revenues under \$20 million. As a result, they have limited capacity and could not win all of the projects awarded in a particular year. As

firms near their capacity constraints, their bids should increase as a result. The authors measured an individual firm's capacity by tracking the number of projects it previously won and the completion dates for those projects. Capacities are normalized to always lie between zero and one. The table shows that bids increase with backlog, which is consistent with economic intuition.

Next, the authors model bids using regression analysis. They use control variables, such as the engineer's cost estimate, distance from the project, and backlog. The regression also controls for competitive factors, such as the distance of the closest rival to the project. They estimated the regression separately for the eleven largest firms in the market. This allows them to study how and if bids are determined differently across the firms.

The authors screen for collusion by comparing the regressions described above for pairs of firms. The intuition behind the screen is simple. If A and B are not colluding, their bids will only depend on cost and competitive factors. On the other hand, if A and B collude, these factors alone cannot explain their bids. As a result, we should expect A and B's bid regressions to differ, which can be detected using hypothesis testing. Bajari and Ye apply this test to the eleven largest firms in their data set. They find that they cannot reject the hypothesis of no collusion, with the exception of two firms recently sanctioned for bid rigging.

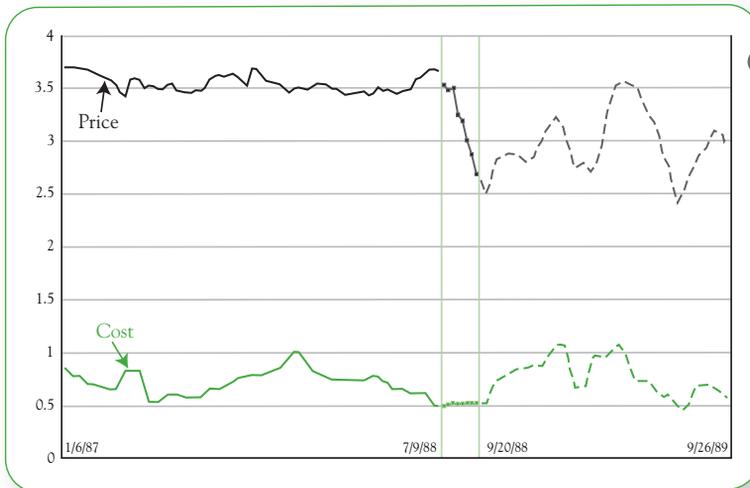
#### D. SCREENS BASED ON PRICE AND COST INFORMATION

Economists also can screen for collusion by searching for prices that appear to be the result of direct coordination or that fail to reflect costs. For example, the DOJ suggests that the following patterns might be indicative of collusive behavior. Identical prices may indicate a price-fixing conspiracy, especially when: (i) prices remain identical for long periods of time; (ii) prices previously were different among firms before they were identical; (iii) price increases do not appear to be explainable by increased costs; (iv) discounts are eliminated, particularly in a market where discounts historically were given, or (v) vendors are charging higher prices to local customers than to distant customers.<sup>6</sup>

ECONOMISTS ALSO CAN SCREEN FOR COLLUSION BY SEARCHING FOR PRICES THAT APPEAR TO BE THE RESULT OF DIRECT COORDINATION OR THAT FAIL TO REFLECT COSTS.

In a recent paper by Rosa Abrantes-Metz (a co-author of this article), Luke Froeb, John Geweke, and Christopher Taylor, the authors build on the intuition suggested in the first pattern noted above.<sup>7</sup> The authors propose a screen based on a search for pockets of high and low price variances among gasoline stations within a single metropolitan area. The idea for the screen came from the observation of price and cost behavior during, and after, the fall of a bid-rigging conspiracy in the market for frozen perch fillets purchased by the Defense Personal Support Center between 1987 and 1989. This conspiracy showed that collusive prices are less volatile and less responsive to cost shocks than are competitive prices. This empirical finding

is also a prediction of many theoretical models. A cartel can be thought of as a “filter” that attenuates cost shocks before passing them to price, thereby reducing price variance. The figure below, extracted from their paper, plots prices, in dollars per pound, for frozen perch filets paid by the Philadelphia Defense Personal Service Center from 1987 through September 1989. The cost data is the average monthly price of fresh perch, also in dollars per pound.



**Figure 1**

**Frozen Perch  
Prices and Costs:  
1/6/87 - 9/26/89**

The authors compare prices and costs in the collusive regime (to the left of the vertical lines) to prices in the competitive regime (to the right of the vertical lines). The period between the two lines represents a transition from collusion to competition. This figure illustrates five features of the collusive and competitive regimes: (i) there was a structural break when the cartel collapsed, marked by a sudden drop in prices; (ii) the average price was higher during collusion than during competition; (iii) prices were more stable under collusion than under competition; (iv) prices followed costs movements more closely under competition than under collusion; and (v) gross margins were higher under collusion.

These five features are consistent with theoretical models of cartels. Also, the features of the data are consistent with the screens we discussed earlier and could be used by antitrust authorities to spot collusion. For example, the higher variance of prices in the competitive regime would be flagged by a well-designed variance screen.

As we will discuss in the next section, this variance screen has started to be used by a number of competition agencies in the United States and Europe.<sup>8</sup>

## E. SCREENS BASED ON QUANTITIES

Another potential screen uses data on quantity. The literature and evidence from prior cartels demonstrate that cartels may attempt to collude by fixing market

shares.<sup>9</sup> Two screens are suggested by the literature: (i) markets shares that appear to be too stable over time and (ii) market shares for all firms in a particular market are negatively correlated over time. The first screen will detect an agreement by the cartel members to divide the market. Examples of cartels with stable market share agreements include cartels in copper plumbing tubes, organic peroxides, and several vitamins (A, E, and folic acid, in particular). In these industries, the cartel set shares at pre-cartel levels. Cartels in citric acid, sorbates, and zinc phosphate used the average of previous years. The second screen is suggested by dynamic models of collusion.<sup>10</sup> In these models, if a cartel member deviates from the collusive agreement, it will need to compensate other cartel members in subsequent time periods. As a result, abnormally high shares for a particular firm in one period should be followed by a reduction in shares the following period.

## F. SCREENS BASED ON MATHEMATICAL LAWS

In many data sets, the distribution of digits has a naturally, regularly occurring pattern. Benford's Law is a mathematical formula that describes this regularly occurring distribution of digits. Studies have shown that the law applies to a surprisingly large number of data sets, including populations of cities, street addresses of the first 348 persons named in *American Men of Science* (1934), electricity usage, word frequency, the daily returns to the Dow Jones, and even the distribution of digits for the opening prices of 780 stocks on the Toronto Stock Exchange over a period of 300 days starting on June 30, 1998. Since Benford's Law is a naturally occurring pattern in many data sets, violations of the Law can be used to detect irregularities. In the past, violations of Benford's Law have been used to detect data tampering, manipulation of financial ratios, and tax evasion.<sup>11</sup>

Rosa Abrantes-Metz, Sofia Villas-Boas & George Judge use Benford's Law to test for conspiracies in several applied settings. The authors also use Benford's Law to test for manipulation of the Libor rate.<sup>12</sup> Similar to the findings in Abrantes-Metz, Kraten, Metz & Seow, their results indicate possible collusion for a specific period.<sup>13,14</sup>

## III. The Use of Screens by Antitrust Agencies

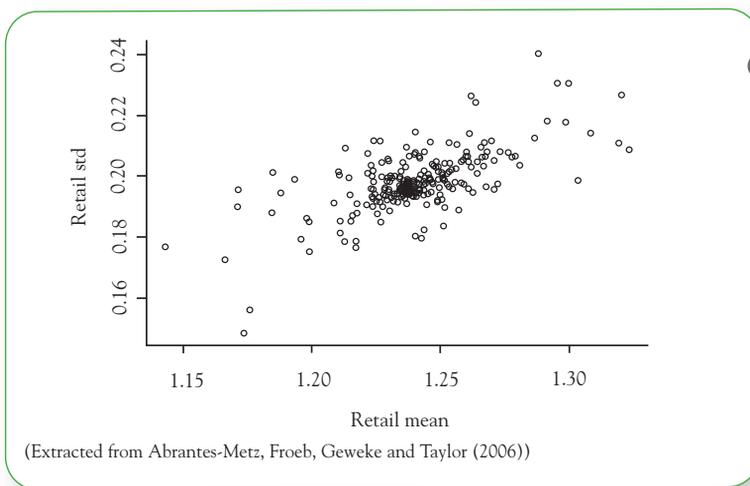
In this section we discuss efforts by antitrust agencies in the United States and Europe to detect conspiracies through the use of screens.<sup>15</sup> Screening efforts in the United States date back the 1970s when the DOJ formed an "identical bids" unit to investigate government procurement auctions in which identical bids were submitted. During the six years of its existence, no conspiracies were uncovered.

In October 2006, the DOJ created the National Procurement Fraud Task Force to promote prevention, early detection, and prosecution of fraud in federal procurement contracts. The Task Force focuses on defective pricing, false claims, grant fraud, labor mischarging, and bid-rigging.<sup>16</sup> And more recently, the DOJ

announced proactive efforts in partnership with state and local agencies to protect stimulus funds provided for by the American Recovery and Reinvestment Act of 2009 from fraud, waste, and abuse. These efforts include spotting behavior consistent with red flags for collusion.<sup>17</sup>

In the late 1990s, Federal Trade Commission (“FTC”) Chief Economist Jonathan Baker proposed a screen based on the behavior of prices over the business cycle. He hypothesized that the exercise of market power would cause prices to increase coming out of a business cycle trough. FTC economists searched for industries that experienced price increases during periods where output was not rising (to rule out demand increases). This screen flagged 600 industries for potential collusion, 25 of which were chosen for investigation. Of the 25, no benign reason for the price increases could be found for 3. One industry was already under extensive investigation by the DOJ. What happened as a result of these investigations is not a matter of public record.

More recently at the FTC, Abrantes-Metz, Froeb, Geweke and Taylor developed the price variance screen for collusion described in the previous section while Froeb was the Chief Economist at the Federal Trade Commission.<sup>18</sup> The authors used it to screen for conspiracies in gasoline retail stations in a localized area by searching for pockets of low variance and high means. Figure 2 below, which is extracted from their paper, represents the 279 gasoline stations studied in Louisville, Kentucky. Each gasoline station is represented by the average value of prices over the period studied and by the standard deviation of those prices. The authors look for a group of stations in the lower right-hand-side corner of the figure, characterized by high mean and low price variance, which is consistent with possible collusive behavior. No such group was found.



**Figure 2**

All Brands,  
279 Stations

This variance screen was referred to in the FTC's post-hurricane Katrina and Rita investigations to refute allegations of gasoline price manipulation.<sup>19</sup>

The FTC uses screens in gasoline markets in its official monitoring program.<sup>20</sup> The FTC uses gasoline prices at major supply points like New Orleans as a competitive benchmark to screen retail prices in 360 cities and wholesale prices in 20 major urban areas. When the screen identifies persistent and significantly

THIS VARIANCE SCREEN WAS REFERRED TO IN THE FTC'S POST-HURRICANE KATRINA AND RITA INVESTIGATIONS TO REFUTE ALLEGATIONS OF GASOLINE PRICE MANIPULATION.

high prices, further investigation is conducted. To date, all of these anomalous prices have come down in a short period of time or have been found to be caused by non-collusive events like pipeline breaks or refinery outages.

In Great Britain, Grout and Sonderegger of the Office of Fair Trading identified industry-level variables that predict cartel activity.<sup>21</sup> The authors built an econometric model to predict collusion at the industry level using data from prior price-fixing cases obtained from the DOJ and the European Commission. The study concludes that industry turnover, cost measures, concentration measures, entry barriers, and employee costs, among other factors, help explain the prevalence of collusion in an industry. Competition authorities in the Netherlands use a similar approach to screen for cartels employing data on leniency applications and industry characteristics.

Other European antitrust agencies are actively using screens to detect conspiracies, namely in gasoline and diesel markets. For example, the European Commission's market monitoring program is a two-step, industry-level approach.<sup>22</sup> First, the program identifies industries at risk of collusion, using characteristics such as a small number of firms, more homogeneous products, and more stable demand. Having identified these at-risk industries, the second stage establishes a "reasonable theory of harm" and a "focused in-depth analysis" to test the theory of harm. Screens play roles in both stages of this EC approach.

## IV. Multiple Uses of Screens

Screens are more than just detection tools for antitrust agencies. They can also be used during litigation in the prosecution and penalization stages by plaintiffs, defendants, and antitrust agencies. Additionally, screens can be quite useful to companies in a pre-litigation setting.

During the prosecution and penalization stages, screens can be used in class action suits, to assist in establishing or rejecting certification, and during motions to dismiss, particularly after *Twombly*. At a later stage in litigation, plaintiffs and defendants can apply screens to determine if an alleged cartel caused harm.

Finally, experts can apply screens when estimating but-for prices and in providing support in damages estimation.

## A. USE OF SCREENS IN THE CLASS ACTION CERTIFICATION STAGE

Screening methodologies might prove very useful in the class certification stage, in which factual claims are alleged to be common across class members. The use of screens could help illustrate different price patterns among the alleged participants in the alleged cartel, as well as in showing that the prices charged to each type of consumer were different enough after controlling for relevant market conditions.

## B. USE OF SCREENS DURING MOTIONS TO DISMISS AFTER TWOMBLY

Suppose plaintiffs file a complaint in which they infer the existence of a conspiracy, based on a screen, and for which there are no sufficient facts plausibly supporting the existence of explicitly coordinated behavior rather than independent strategic behavior. This is particularly important after the Supreme Court decision in *Bell Atlantic Corp. v. Twombly*<sup>23</sup> in which it is stated that “an allegation of parallel conduct and a bare assertion of conspiracy” does not by itself justify a claim for relief under Section 1 of the Sherman Act since the complaint does not provide sufficient facts to plausibly support the inference of a conspiracy as opposed to independent action.<sup>24</sup> This decision marks a clear turn in the standards required in these types of cases by requiring enough factual matter and plausibility that a collusive agreement existed. Previously, and for the last fifty years, the Court allowed cases to proceed unless it appeared likely beyond doubt that plaintiffs would not be able to prove the facts in support of their claims.<sup>25</sup>

WITH THE HIGHER STANDARDS IMPOSED BY TWOMBLY, SCREENS CAN BE OF PARTICULAR IMPORTANCE AS IT IS NOW REQUIRED THAT THE ECONOMIC EXPERT OPINES ON PLAUSIBILITY.

With the higher standards imposed by *Twombly*, screens can be of particular importance as it is now required that the economic expert opines on plausibility, i.e., on “how likely is it that such evidence was in fact produced under an agreement among alleged conspirators?”

Screens have been used on stock options backdating cases and survived some motions to dismiss. Plaintiffs have used screening methodologies based on abnormally high returns on particular days to assist in their argument for evidence of stock options backdating and springloading, and defendants have argued for the low power of some of these screens to correctly identify such situations for the current case and putting forward their own screens.

## C. USE OF SCREENS IN DAMAGES AND EFFECTS CALCULATIONS

Screens can also provide useful information for the estimation of overcharges and damages, for two reasons. First, screens can be used to uncover the time peri-

ods during which a cartel operated effectively. As discussed above, studies of previous cartels indicate that they may fail to change prices and quantities from a competitive level during many time periods. Second, many screens require the economist to study the relationship between prices and costs in normally functioning markets. This can assist the expert in estimating the but-for price in a damage estimate. Froeb and Shor use data from the cartel in Figure 1 to estimate but-for competitive prices during collusion, based on the observed relationship between prices and costs after the break of the cartel.<sup>26</sup>

In addition, screens allow the economic expert to predict which effects and damages a competition authority may estimate when a cartel is alleged. Above, we surveyed the screens used by various competition authorities. The alleged effects of a cartel are likely to be closely related to the screen used to detect the cartel in the first place. Many alleged cartels are international. Even if an alleged colluder's business is primarily in the United States, collusion may be detected by screens used by European authorities. If collusion is suspected in Europe, the screen is likely to be used by U.S. antitrust authorities and may become an issue in U.S. courtrooms as a result.

#### **D. USES OF SCREENS IN PRE-LITIGATION**

Screens can help firms decide whether it would be beneficial to apply for leniency. Applicants need to compare the benefits obtained from applying versus the risk of prosecution and penalties. Leniency programs differ substantially between the United States and Europe. The U.S. leniency program applies only to the first reporting firm and only applies before an investigation has begun. In Europe, however, there are also benefits to the second and third reporting parties.

#### **E. USE OF SCREENS BY DEFENDANTS IN MANIPULATION CASES**

An additional use of screens is by defendants who are accused of market manipulation. Abrantes-Metz and Addanki developed a screen for manipulation in commodities markets.<sup>27</sup> The idea behind the test is to see whether short-run futures market prices are an unbiased predictor of spot market prices. This is a key prediction of economic models of competitive financial and commodities markets. If markets are manipulated, there may be a divergence between spot and futures prices.

This screen was applied on behalf of the defendants in a case and was used as supporting empirical evidence of the absence (or non-materiality) of anticompetitive behavior. As a benchmark to test the method, the authors applied it to the famous Hunt Brothers silver manipulation episode of 1979-1980. The authors demonstrated that this screen was able to detect this well-known instance of market manipulation but that the same manipulation features found in the silver episode were not verified in the case at hand, representing evidence inconsistent with the alleged manipulation for the case at hand.

## F. USE OF SCREENS FOR INTERNAL MONITORING

Finally, screens described above could also be used by managers to monitor for fraud in accounting and reimbursement statements, collusion on employee compensation surveys, or other forms of data manipulation. Furthermore, screens could be used to detect for price-fixing in purchasing or procurement and enhance robustness of compliance programs as explained in Abrantes-Metz, Bajari, & Murphy.<sup>28</sup> However, note that the methods we have discussed are powerful and can be used to detect a much wider range of attempts by employees or suppliers to manipulate data.

## V. Conclusion

A screen is a statistical test designed to detect conspiracies aimed at illegally manipulating a market. Competition authorities, academics, and consultants have designed a variety of screens to detect competition problems. In this paper, we first describe screens designed to detect bid-rigging, price-fixing, market allocation schemes, and commodity market manipulation. Next, we discuss the ways in which screens can be used by plaintiffs and defendants in antitrust cases. We also describe the use of screens for internal company use and in enhancing compliance programs. The use of empirical screens has been increasing over time. Given the increased data availability and computer power, we expect such a trend to continue into the future. ▼

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- 1 See Scott D. Hammond, *Cornerstones of an Effective Leniency Program*, ICN Workshop on Leniency Programs (2004), available at <http://www.justice.gov/atr/public/speeches/206611.htm>.
  - 2 See Robert H. Porter & J. Douglas Zona, *Detection of Bid Rigging in Procurement Auctions*, 101 J. POL. ECON. 518 (1993) (examining auctions for highway construction projects in Long Island); Laura H. Baldwin et al., *Bidder Collusion at Forest Service Timber Sales*, 105(4) J. POL. ECON. Vol. 105, No. 4, 657-699 (1997) (examining timber auctions in the Pacific Northwest); Robert H. Porter & J. Douglas Zona, *Ohio School Milk Markets: An Analysis of Bidding*, 30 RAND J. ECON. 263 (1999) (examining the procurement of school milk in Ohio); Martin Pesendorfer, *A Study of Collusion in First-Price Auctions*, 67 REV. ECON. STUD. 1 (2000); Peter Crampton & Jesse Schwartz, *Collusive Bidding: Lessons from the FCC Spectrum Auctions*, 17 J. REG. ECON., Vol. 17, 229-252 (2000); Patrick Bajari & Jungwon Yeo, *Auction Design and Tacit Collusion in FCC Spectrum Auctions*, forthcoming in INFORMATION ECONOMICS AND POLICY. ECON. & POL'Y; Patrick Bajari & Lixin Ye, *Deciding Between Competition and Collusion*, 85(4) REVIEW ECON. STAT., Vol. 85, No. 4, 971-989 (2003); John List, Daniel Millimet, & Michael Price, *Inferring Treatment Status when Treating Assignment is Unknown: with an Application to Collusive Bidding Behavior in Canadian Softwood Timber Auctions*, mimeo University of Chicago (2004); John Asker, *A Study of the Internal Organisation of a Bidding Cartel*, AMERICAN ECON. REVIEW, Vol. 100, No. (3) AMER. ECON. REVIEW, 724-762 (2010); Robert Marshall & Leslie Marx, *The Vulnerability of Auctions to Bidder Collusion*, forthcoming in Q. J. ECON (2007).
  - 3 Robert H. Porter & J. Douglas Zona, *Ohio School Milk Markets: An Analysis of Bidding* (NBER Working Paper No. 6037 (1997).
  - 4 Other studies have performed similar tests with similar results in markets where collusion is strongly suspected. This includes Porter & Zona's (1993) analysis of paving contracts on Long Island in the 1980s, List et al.'s (2004) examination of bids for Canadian timber, and Marshall & Marx's (2008)

study of bidding decisions for Russian Oil and Gas leases. Taken together, these papers demonstrate the usefulness of a screen that tests for the independence of bid submissions and bid levels. In the introduction, we argued that a good screen should have few false positives. Bajari & Ye (*infra*) demonstrate that this screen appears to have this property in their study of bidding by contractors in Minnesota, North Dakota, and South Dakota during the late 1990s.

- 5 Patrick Bajari & Lixin Ye, *Deciding Between Competition and Collusion*, 85(4) REV. ECON. STAT., 971-989 (2003).
- 6 See PRICE FIXING, BID RIGGING, AND MARKET ALLOCATION SCHEMES: WHAT THEY ARE AND WHAT TO LOOK FOR, available at <http://www.usdoj.gov/atr/public/guidelines/primer-ncu.htm>.
- 7 Rosa Abrantes-Metz, Luke Froeb, John Geweke, & Christopher Taylor, *A Variance Screen for Collusion*, 24 INT'L J. OF I.O. 467-486 (2006).
- 8 At the Italian Competition Authority, two economists "tested" the price variance screen on actual cartels in two different industries: the motor fuel market (gasoline and diesel); and the market for personal care and baby food products sold in pharmacies. The authors found that had the variance screen been applied to the data, it would successfully have detected these cartels. See Fabio Esposito & Massimo Ferrero, *Variance Screens for Detecting Collusions: An Application to Two Cartel Cases in Italy*, Italian Competition Authority, Working Paper (2006).
- 9 See Harrington, *Behavioral Screening and the Detection of Cartels*, EUR. COMPETITION LAW ANNUAL 2006: ENFORCEMENT OF PROHIBITION OF CARTELS (Claus-Dieter Ehlermann & Isabela Atanasiu, eds.) (2007).
- 10 See Susan Athey & Kyle Bagwell, *Optimal Collusion with Private Information*, 32(3) RAND J. ECON, 428-465 (2001) and Susan Athey, Kyle Bagwell & Chris Sanchirico, *Collusion and Price Rigidity*, 71 REV. ECON. STUDIES, 317-349 (2004).
- 11 Others who have used Benford's law to check the validity of purported scientific data in the social sciences include Hal Varian, *Benford's Law*, 26 AMER. STATISTICIAN, 65-66 (1972); Charles Carslaw, *Anomalies in Income Numbers: Evidence of Goal Oriented Behavior*, 63(2) ACCT. REV. 321-327 (1988); Mark Nigrini, *A Taxpayer Compliance Application of Benford's Law*, 18(1) J. AMER. TAXATION ASSN. 72-91 (1996); Cindy Durtschi, William Hillson & Carl Pacini, *The Effective Use of Benford's Law to Assist in Detecting Fraud in Accounting Data*, 5 J. FORENSIC ACCT., 17-34 (2004); C. Geyer & P. Williamson, *Detecting Fraud in Data Sets Using Benford's Law*, 33 COMM. IN STAT., 229-246 (2004); D. Giles, *Benford's Law and Naturally Occurring Prices in Certain Ebay Auctions*, 14(3) APPLIED ECON. LETTERS 157-161 (2007); John Nye & Charles Moul, *The Political Economy of Numbers: On the Application of Benford's Law to International Macroeconomic Statistics*, 7(1) THE B.E. JOURNAL OF MACROECONOMICS (2007); George Judge & Laura Schechter, *Detecting problems in Survey Data using Benford's Law*, J. HUMAN RESOURCES, forthcoming (2009).
- 12 Rosa Abrantes-Metz, Sofia Villas-Boas, & George Judge, *Tracking the Libor Rate*, APPLIED ECON. LETTERS, forthcoming (2010).
- 13 Abrantes-Metz, Villas-Boas, and Judge are also testing the power of Benford's Law to detect manipulations in commodities markets and in price-fixing cartels.
- 14 Rosa Abrantes-Metz, Michael Kraten, Albert Metz & Gim Seow, *LIBOR Manipulation?* Working Paper (2008), available at [http://papers.ssrn.com/sol3/cf\\_dev/AbsByAuth.cfm?per\\_id=339863](http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=339863).
- 15 A more detailed discussion can be found in Rosa Abrantes-Metz & Luke Froeb, *Competition Authorities are Screening for Conspiracies: What are they Likely to Find?* The American Bar Association Section of Antitrust Law Economics Committee Newsletter (2008).

- 16 The National Procurement Fraud Task Force Web page is located at <http://www.usdoj.gov/criminal/npftf/>.
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# Constant Vigilance: Maintaining Cartel Deterrence During the Great Recession

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Antitrust authorities around the world have continued to pursue illegal price-fixing throughout the economic crisis, but have also increasingly granted “inability to pay” reductions in fines. While taking ability to pay into account is appropriate, as the overriding policy goal is the promotion of competition, these reductions in fines must be accompanied by other policy changes in order to maintain the expected level of sanction. Granting inability to pay requests for reductions in fines is an ex-post decision on the part of antitrust authorities, and yet it clearly has ex-ante incentive implications for cartel formation. These fine reductions also have the potential to undermine the legitimacy and credibility of the antitrust authorities, and therefore must be implemented with specific, objective, and transparent criteria. To assure the effectiveness of anti-cartel policy, we should design policies that are informed by empirical research. Antitrust authorities should be vigilant in restricting communication that facilitates cooperation among competing firms in highly concentrated industries, especially those with a history of collusion. They should also monitor the behavior of former cartel members, raising standards for mergers and other cooperative agreements for firms with a history of collusion. This paper reviews the implementation of recent cartel “inability-to-pay” reductions in fines and proposes tools for maintaining deterrence without increasing the likelihood of bankruptcy. Our recommendations build on our earlier empirical research on the determinants of cartel stability.

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## I. Introduction

The European Commission recently announced several decisions in which fines to colluding firms were substantially reduced in order to avoid undermining the firms' financial viability.<sup>1</sup> This flexibility is entirely appropriate, as the overriding policy goal is the promotion of competition. Eliminating a competitor, vulnerable because of cyclical fluctuations outside the control of any individual firm, does not promote competition. However, in order to maintain adequate deterrence, this reduction in fines must be accompanied by other policy changes that maintain the expected level of sanction.<sup>2</sup> In fact, it is often noted that cartels seem more likely to form during recessions, suggesting that it is necessary to *strengthen*, not simply maintain, the existing level of deterrence. Such a policy also has the potential to undermine the legitimacy and credibility of the antitrust authorities. This can be addressed with transparency and a clearly delimited scope for the policy in both time and circumstance. This paper reviews the implementation of recent "inability-to-pay" reductions in fines and proposes tools for maintaining deterrence by building on our earlier research on the determinants of cartel stability.

## II. Theory of Collusion and Effective Deterrence Policies

To select anti-cartel policy instruments efficiently and effectively, it is necessary to understand what causes cartel failure. To do this, we begin with the familiar constrained optimization problem faced by firms forming a cartel. In a market with identical price-setting firms, infinitely repeated interaction among these firms, and perfect information, collusion can be sustained if firms are sufficiently patient and if the difference between collusive profits and defection profits is sufficiently high. For the framework behind this statement, see the Appendix.<sup>3</sup>

There are a variety of factors that determine whether this constraint is satisfied in a particular market; these have been discussed at length under the rubric of "facilitating" practices or structural conditions.<sup>4</sup> Many of these structural conditions are not amenable to manipulation by policy makers. For example, neither the homogeneity of a good nor the cost structure is likely to be the basis of new anti-cartel policy instruments.

There are instruments that can be developed by drawing on this framework. When a cartel is formed, its member firms expect the inequality defined in the Appendix (often referred to as the incentive compatibility constraint) to hold; that is, the present discounted value of expected profits is higher under collusion

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than with defection and the competitive aftermath. Cartels dissolve when they find the constraint violated by an unanticipated shock.<sup>5</sup>

The question for regulators is, what policies create effective shocks to disrupt cartels? Such policies would have two effects: (1) When first adopted, they disrupt some ongoing cartels, and (2) When maintained over time, they deter the formation of new cartels. The adoption and refinement of corporate leniency and amnesty policies over the last two decades is an example of a policy that is effective because it is designed to manipulate the structure of the cooperative oligopoly game and increase firms' incentives to defect.

Anti-cartel policies can also learn from empirical research. Our research highlights several key determinants of contemporary cartel breakup:<sup>6</sup>

1. As many would expect, the strengthening of leniency policies has been the primary cause of cartel breakup in the last two decades.
2. Other firms can disrupt cartels when their interests are not aligned with the group. In particular, rising competition has thwarted the best and most sophisticated cartel organizations. A stable fringe is unlikely to disturb collusion, but a *growing* fringe, especially based on a new technology, could. On the other hand, despite theoretical speculation to the contrary, large customers generally do not break up cartels.<sup>7</sup>
3. Communication and organization are important to maintaining collusion. Cartels that rely on trade associations or third-party cartel monitoring are less likely to fall apart than those that do not.
4. Cartels that plan for fluctuations in sales and establish mechanisms to compensate cartel members tend to last longer than those that do not.
5. Cartels with financially unstable members are fragile; firms on the verge of bankruptcy do not make good cartel partners.<sup>8</sup>

Each of these empirical findings contains the seed of an anti-cartel policy, discussed below.

### III. Recent Implementation of "Inability to Pay"

Despite the success of antitrust policy in precipitating the collapse of a large number of cartels over the last fifteen years, many antitrust economists argue that current penalties do not provide sufficient deterrence to undermine the profitability of price-fixing.<sup>9</sup> Thus, reductions in penalties motivated by concerns about the financial viability of cartel conspirators should be undertaken only in extreme cases. Both the U.S. Department of Justice ("DOJ") and the European Commission ("EC") have reduced fines on this basis. Numerous other jurisdictions also take inability to pay into account.<sup>10</sup>

The European Commission's policy on "ability to pay" is established in point 35 of its 2006 Guidelines on the method of setting fines, and the reduction in fine is intended to be granted only "in exceptional cases."<sup>11</sup> The reduction will be analyzed in a "specific social and economic context" and is characterized by a high burden of proof: there must be "objective evidence that imposition of the fine... would irretrievably jeopardize the economic viability of the undertaking concerned and cause its assets to lose all their value."<sup>12</sup> In assessing a company's financial status, the Commission takes into account a variety of factors, including recent financial statements, projections for the subsequent two years, common financial ratios measuring liquidity and solvency, and "relations with banks and shareholders."<sup>13</sup>

In the decade prior to the current recession (1998 – 2007), there were over twenty applications to the EC for fine reductions due to inability to pay. The EC granted only two reductions in fines and gave one firm an extended payment period.<sup>14</sup> Since 2008, the EC has had thirty-two requests by companies charged with price-fixing, of which ten have been granted. The first reduction in this recent period was given to Almamet for its participation in the cartel relating to calcium carbide and magnesium-based reagents for the steel and gas industries. Almamet's fine was reduced by approximately EUR 760,000. This was a twenty percent reduction in the fine for Almamet, but it reduced the overall penalty to the cartel by less than one percent.

Reductions in fines of this magnitude are probably not problematic in the current economic situation. Unfortunately, the EC has chosen to suppress the amounts given in subsequent "inability to pay" fine reductions, so we have no way of knowing the overall impact of these reductions on deterrence. In the July 2010 animal feed phosphates press release, for example, the EC states that two undertakings "have invoked their 'inability to pay'... [and as] a result of this assessment, the Commission accepted one of the applications and granted a reduction of 70% of the fine."<sup>15</sup> The press release does not identify the recipients of the fine reduction or the monetary value of the reduction for inability to pay. Reductions in fines, particularly without transparency, can create the potential for bias. This kind of discretion in enforcement can undermine the incentives provided by *per se* rules against price-fixing.<sup>16</sup>

The decision to suppress this information also creates information asymmetry between the members of the cartel and the general public. It therefore facilitates future collusion by handing firms an instrument with which to demonstrate their trustworthiness to other cartel members. This is similar to a classic "lemons" problem in which uninformed market participants cannot distinguish between

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firms that are in dire financial straits (lemons) and those that are healthy (“plums”). In the classic formulation of the lemons problem, the plums have an incentive to try to reveal their type. When the EC announces that it has given a subset of cartel members a reduction in fines but does not identify which firms have received this subsidy, it is in the narrow economic interest of the financially strong firms to publicly announce that they were not the recipients of such a subsidy. To our knowledge, not a single firm has come forward to reveal this positive news about its financial condition. This choice to remain anonymous, even

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at the cost of lower valuations by outsiders who cannot determine which firms were unable to pay, is a way to earn the good will of its former co-conspirators. There are efficiency-enhancing reasons why a firm might want to maintain positive relations with its competitors, such as

joint research and development or cooperation to increase overall demand. But, especially in a highly concentrated industry with a history of collusion, there are also more nefarious explanations. The observed deference suggests that the EC’s actions may be providing former cartel members with a mechanism for reestablishing trust after the breakup of their cartel.

In the United States, the “inability to pay” reduction in fines falls under §8C3.3 of the Federal Sentencing Guidelines, which provides that the “court shall reduce a fine below that otherwise required” if its imposition would hurt the entity’s ability to provide restitution to victims or “if the court finds that the organization is not able and, even with the use of a reasonable installment schedule, is not likely to become able to pay the minimum fine required...”<sup>17</sup> The DOJ has taken inability to pay into account for many years; when a firm receives an “inability to pay” reduction in its fine, that is indicated in the public plea agreement. In some cases, but not all, these plea agreements indicate the size of the fine reduction. Based on a review of plea agreements listed on the DOJ website, the United States granted thirteen inability to pay reductions in fines to corporations convicted of price-fixing between 1998 and 2006.<sup>18</sup> Since the recession the DOJ has granted two additional fine reductions.

The issues raised by these kinds of discretionary reductions in fines are highlighted by reductions given by the DOJ to one member of the DRAM cartel. Hynix, a Korean semiconductor company which sold DRAM computer memory, pled guilty to criminal antitrust violations in 2005 for cartel activity occurring between 1999 and 2002. The company and the DOJ agreed upon a \$185 million dollar fine.<sup>19</sup> Under the Sentencing Guidelines, Hynix’s activity should have prompted a fine of \$265.5 million, but the DOJ reduced its recommendation due to Hynix’s inability to pay.<sup>20</sup> Hynix’s inability to pay at the time was questioned, as it had reported profits of \$400 million in the final quarter of 2004, and capital surplus of \$500 million dollars.<sup>21</sup> Competition policy should create a level playing field. While regulators balance many competing demands, it is critical that com-

petition policy not be perceived as favoring particular firms or subject to influence as these perceptions undermine the fundamental purpose of the policy.

While a fine reduction policy, appropriately implemented, may be necessary at the current moment, it raises three important issues. Most importantly, it reduces deterrence. We will discuss this at length below. But there are other problems with such a policy that can and should be addressed in any implementation. Regulators may easily become accustomed to making exceptions, so that this type of policy carries with it the classic “slippery slope” concern. This is particularly true because the reduction amounts to a subsidy to one firm in an industry. This may encourage regulators to reduce subsequent fines out of a sense of fairness to other firms. There is also a real concern that a firm’s “ability to pay” is amenable to manipulation by the firm, which always has more information about its own financial state than does the antitrust authority.

The policy must be implemented in a way that avoids establishing new, lower fines as the norm. It may encourage regulators to establish the new lower fine as the “benchmark” or reference point for determining future fines. Behavioral economists have found not only that perception is “reference dependent” but also that this can lead to a “status quo bias.”<sup>22</sup> Although this phenomenon can often work so as to maintain the status quo policies, it is also possible for new reference points to be adopted, which will once again become “sticky.”

We see some evidence of this occurring with the recent EC decisions. The EC remarked that these reductions were unusual in its announcement in the bathroom equipment manufacturers’ cartel, but made no such statement in the reductions that it gave in the pre-stressing steel and animal feed phosphates cartel decisions in the next month. While the first announcement was clearly intended to identify a change in enforcement regime, the choice *not* to highlight the exceptional nature of the subsequent fine reductions helps to establish these kinds of reductions as normal policy. It is critical that this regime be identified as crisis-specific so that it does not extend beyond the current economic downturn.

ONE WAY TO ASSURE THAT THIS DOES NOT BECOME A PERMANENT LOOPHOLE IS TO PROVIDE EXTENDED PAYMENT PERIODS RATHER THAN FINE REDUCTIONS.

One way to assure that this does not become a permanent loophole is to provide extended payment periods rather than fine reductions. Both the EC and the DOJ sentencing guidelines specifically provide for extended payment periods, and such payment plans have been negotiated in a number of instances by both agencies. This approach also better matches the economic challenge of the current period—breakdowns in financial markets—to the legal action. If the problem is that we are in a financial crisis in which firms with positive net present value have limited access to liquidity through the credit markets, then the appropriate remedy is one that provides liquidity, not a reduction in fines. It also maintains the method for determining fines, and therefore the credibility of the antitrust authority.

## IV. Maintaining Deterrence

While granting inability to pay requests for reductions in fines is an *ex-post* decision on the part of antitrust authorities, it clearly has *ex-ante* incentive implications for cartel formation. Simply reducing the expected fine decreases deterrence and will increase the number and effectiveness of cartels. One way to address the need to maintain or increase deterrence is to increase non-pecuniary sanctions, especially prison terms. The number of countries that have recently adopted or are considering adopting criminal sanctions for cartel activity has grown noticeably over recent years.<sup>23</sup> However, this is a relatively blunt instrument. It often has less effect, in practice, than the *de jure* policy suggests in countries without a long tradition of aggressive action toward cartels.<sup>24</sup> Indeed, historically in the United States, this was also the case. Although U.S. law has long permitted jail terms for antitrust violations, these provisions were seldom used in cartel cases until antitrust enforcement against international cartels became more aggressive in the mid-1990s.

There are a variety of other instruments at the disposal of antitrust authorities to increase deterrence without increasing the likelihood of bankruptcy. To assure the effectiveness of anti-cartel policy, we should design policies that are informed by research on the determinants of cartel stability. As indicated above, empirical evidence suggests that antitrust enforcement is the single most important cause of cartel breakup over the past fifteen years. By definition, we are weakening this enforcement by granting fine reductions. We must therefore increase the likelihood of prosecution. This requires maintaining or even increasing resources dedicated to enforcement. It appears that the relevant budgets at the DOJ and the Federal Trade Commission (“FTC”) have kept up with inflation over the last decade.<sup>25</sup> Antitrust authorities are also increasingly tackling this issue with forensic techniques to identify collusion, rather than relying entirely on amnesty applications.<sup>26</sup>

Given the level of antitrust enforcement, the most important tool in destabilizing cartels is active encouragement of competition, especially entry and innovation. Entry and innovation are facilitated by access to finance and other critical resources including customers and suppliers. Antitrust agencies can promote entry by limiting vertical foreclosure and aggressive attention to post-cartel behavior, as discussed further below.

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It is also imperative that antitrust authorities be vigilant in restricting communication that facilitates cooperation among competing firms. In our sample of eighty-one convicted international cartels, every single cartel participated in direct, face-to-face meetings.<sup>27</sup> The continued reliance on meetings in an age of extensive electron-

ic communication technologies suggests that cartels rely on such meetings to build trust.<sup>28</sup>

We also find that cartels with actively involved trade associations—not those simply using trade associations as “cover” but where the association helped with cartel organization—were much less likely to collapse on their own.<sup>29</sup> Competition authorities have been able to target cartels that involved trade associations, suggesting that monitoring trade association activity and other venues where competing firms gather is a useful anti-cartel strategy.

As firms respond to this enforcement, they may develop more subtle methods for communicating and coordinating conduct.<sup>30</sup> It is well documented, for example, that experienced cartels develop hierarchical structures to separate information exchange and bargaining by high-level executives from detailed price and quantity setting by regional or local managers.<sup>31</sup> These examples demonstrate not only the role that communication plays in explicit collusion, but also the likelihood that communication can facilitate tacit collusion or, more generally, result in lessening the intensity of competition.

Cases involving inter-firm communication and the boundaries of acceptable information exchange arise on both sides of the Atlantic. For example, in response to U-Haul’s actions from 2006 through 2008 to raise market prices, including announcements made during a 2008 quarterly earnings conference call, the FTC and U-Haul agreed that U-Haul would refrain from “[c]ommunicating, publicly or privately, to any Person who is not an Insider, that Respondents are ready or willing . . . to raise, fix, maintain, or stabilize prices or price levels, rates or rate levels, conditional upon a Competitor also raising, fixing, maintaining, or stabilizing prices or price levels, rates or rate levels.” The order specifically exempts communication that is primarily directed at customers (i.e., is disseminated “through Web sites or other widely accessible methods of advertising such as newspapers, television, or signage”).<sup>32</sup>

The European Commission tackles these issues in its recent draft Horizontal Guidelines.<sup>33</sup> While these guidelines clearly still reflect the legal and economic ambiguity of many types of communication, they provide an important framework for rules restricting communication that undermines competition. Based on legal frameworks that ban explicit collusion, rules regarding communication often focus on whether or not the communication is evidence of such explicit collusion. This often leads to sharp lines being drawn between private and public communication.

A different distinction tied more closely to the economic impact of information-sharing would focus on whether information is shared in a fashion that allows customers to act on it immediately. If customers can act immediately in response to an announcement, then the announcement has potential significant cost to the firm. If, on the other hand, the information is shared in a way that

allows competitors to respond more quickly than customers, it is much more likely that the information will have an anticompetitive impact. Choosing to share information in a way that allows competitors to respond more quickly than customers is not, in and of itself, evidence of explicit collusion. On the other hand, because of the greater likelihood of anticompetitive effects, this kind of information sharing should be suspect.

Another way to maintain deterrence is to direct more enforcement resources toward firms and industries that have a history of explicit collusion. Recidivism is rampant among price-fixers. Some industries have maintained collusive arrangements on and off over more than a century.<sup>34</sup> Certain firms have been convicted multiple times over many years across different products, suggesting that a single prosecution does not provide sufficient deterrence for long ingrained firm practices.<sup>35</sup>

Once a cartel is uncovered and prosecuted, antitrust authorities should, and often have, provided closer monitoring of behavior in an industry.<sup>36</sup> They also have occasionally imposed behavioral remedies similar in intent to those used to prevent the exercise of market power by dominant firms. In some cases it is not clear what impact these post-conviction restrictions have, as they seem to assert simply that the firms will not violate the law in the future. It may be that making such an assertion reduces the costs of prosecution or shifts the evidentiary burden in future cases.<sup>37</sup> In other cases, however, post-conviction orders restrict specific behaviors that are otherwise legal but that, given the history of the industry, could facilitate collusion.<sup>38</sup> This is a relatively easy way to increase deterrence while relaxing fines because these post-conviction restrictions are both an additional, non-pecuniary punishment, and a deterrent to collusion in the future.

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The U.K. Office of Fair Trade has made use of a policy that prevents individual recidivism by banning executives from acting as company directors after a cartel conviction.<sup>39</sup> This is an additional punishment for those individuals, and it also makes reestablishing cooperation more difficult by changing the faces of the people engaged in inter-firm interactions. Even more expansively, Daniel Sokol has suggested requiring that all executives certify that their firms are *not* participating in collusive activity. This could provide competition authorities with a useful enforcement tool.<sup>40</sup> While promises not to break the law may not increase deterrence directly, this policy could increase the ease of prosecution of individuals for corporate malfeasance.

Two other areas of post-conviction oversight with heightened significance during a recession are merger review and the disposition of bankruptcy proceedings for former cartel member firms. There is a risk of perverse effects if competition authorities pursue vigorous prosecutions of cartels, but have relatively flexible

policies toward mergers. This simply creates an incentive for firms to merge in order to accomplish what would be prohibited for them as independent firms.<sup>41</sup>

For example, Outokumpu Oyj (Finland) and Boliden (Sweden) participated in the copper plumbing tubes cartel from 1988 to 2001. In 2003, the two firms announced their intent to merge. The merger was approved by the European Commission on December 9, 2003, one week before the EC fined Outokumpu for its participation in the industrial copper tubes cartel and nine months before it fined both firms for fixing prices in copper plumbing tubes.<sup>42</sup> Regulators are not unaware of this dilemma, but their response has been inconsistent. Davies et al., analyze merger decisions by the EC in which collective dominance was a serious consideration. They note that the EC intervened in one merger case where there was previous cartel activity but, in another case, did not intervene “despite evidence of previous cartel behaviour in a related market.”<sup>43</sup>

A similar issue arises when a former cartel member enters bankruptcy proceedings. The priority of bankruptcy courts is to take actions that preserve the value of the firm’s assets to its debtors. This presumption can lead to anticompetitive industry reorganization. The DOJ and the FTC have intervened in bankruptcy proceedings with mixed success. For example, in the aftermath of the prosecutions related to the graphite electrodes cartel, the Carbide/Graphite Group filed for Chapter 11 bankruptcy protection. The DOJ filed an antitrust lawsuit to prevent SGL, a co-conspirator in the cartel, from acquiring Carbide/Graphite Group. The bankruptcy court judge awarded the assets of Carbide/Graphite Group to another company and the DOJ dismissed its lawsuit.<sup>44</sup> In a more recent case that did not involve prior collusion, the FTC was unable to convince a bankruptcy judge to slow the march of bankruptcy proceedings sufficiently to protect the interests of consumers.<sup>45</sup>

WE WOULD ADVOCATE FOR AN INCREASED ROLE FOR ANTITRUST AGENCIES IN BANKRUPTCY PROCEEDINGS, ALLOWING BANKRUPTCY COURTS TO CONSIDER THE EASE OF CARTELIZATION WHEN CHOOSING AMONG BIDDERS FOR THE FAILED FIRM’S ASSETS.

We would advocate for an increased role for antitrust agencies in bankruptcy proceedings, allowing bankruptcy courts to consider the ease of cartelization when choosing among bidders for the failed firm’s assets. J. Thomas Rosch of the FTC makes this point more generally:

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“In fact, the Commission has already been faced with not just a failing firm argument, but an actual failing firm in one industry in the last month and a half. The most the agency could do was explain to the bankruptcy court which of two bidders for the failed firms’ assets appeared to be the least anti-competitive (though both appeared anticompetitive). As almost always hap-

pens in these situations, the more anticompetitive firm offered more money for the assets to the bankruptcy court, and the court approved that buyer. The result will probably be reduced output, higher prices, less innovation and fewer jobs, but there is nothing the antitrust enforcement agencies can do about it. This is not a good result, and underscores the need to closely analyze the financial conditions of all firms involved when we review mergers—the resulting merged entity as well as remaining competitors.<sup>746</sup>

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Any discussion of deterrence must consider the role of private litigation. While there are clearly benefits to permitting private action, including basic fairness to harmed consumers, we do not think that this is a particularly effective tool to balance “inability to pay” fine reductions. Private actions create the same potentially anticompetitive impact of large governmental fines—weakening firms to the point that they exit the industry. An additional and, we believe, more fundamental limitation to this approach, is that private cases are a relatively weak device for disrupting cartels. The availability of treble damages in the United States has generally not encouraged large firms to report upstream cartels.<sup>47</sup> While there are many follow-on lawsuits, very few price-fixing cases are initiated by customers. Customers may not have the information necessary to intervene prior to a government investigation; if that is the case, any societal benefit from civil litigation is reduced.

## V. Concluding Remarks

Antitrust authorities have responded to the Great Recession very differently from the response to the Great Depression of the 1930s. Unlike the promotion of collusion endorsed in the National Industrial Recovery Act of 1933, today’s policy makers have focused their efforts on fiscal and monetary policy. Both the DOJ and the EC have continued to pursue illegal price-fixing throughout the crisis. However, policy makers have granted more “inability to pay” reductions when fining cartel members. While this may be necessary given current economic conditions, it reduces the already relatively low deterrence to collusion.

WE NEED TO ASSURE THAT ANY IMPLEMENTATION OF AN “INABILITY TO PAY” POLICY HAS SPECIFIC, OBJECTIVE, AND TRANSPARENT CRITERIA.

We need to assure that any implementation of an “inability to pay” policy has specific, objective, and transparent criteria. Lack of transparency can undermine the credibility of competition policy, creating the appearance of favoritism. When antitrust authorities suppress information about which firms receive “inability to pay” fine reductions, they also provide former co-conspirators with an instrument to demonstrate their continued fealty to one another.

This reduction in the size of fines requires that we find alternative methods to increase deterrence along other dimensions. As the expansion of amnesty and leniency policies over the last decade has shown, the most effective policies in this arena are those that take advantage of cartel vulnerabilities. Our research has shown that cartel stability is particularly weakened by market entry and lack of communication. Encouraging entry and preventing potentially anticompetitive inter-firm communication, as the new EC guidelines propose to do, can limit a cartel's ability to survive.

Antitrust authorities can also use post-conviction behavioral remedies, such as restricting board membership or scrutinizing mergers among former co-conspirators. This would increase non-pecuniary penalties while simultaneously making future collusion more difficult. Ongoing discovery of anticompetitive agreements indicates that, despite aggressive action by competition authorities, the allure of collusive profits continues to seduce firms into illegal activity. Creative and constant vigilance on the part of competition authorities is required. ▼

## Appendix

The following illustrates the familiar constrained optimization problem faced by firms forming a cartel. In a market with identical price-setting firms, infinitely repeated interaction among these firms, and perfect information, collusion can be sustained if:

$$\sum_{t=0}^{\infty} \delta^t \Pi^i(p_{i,t}^M, p_{-i,t}^M) - \theta \Omega > \Pi^i(p_{i,0}^D, p_{-i,0}^M) + \sum_{t=1}^{\infty} \delta^t \Pi^i(p_{i,t}^C, p_{-i,t}^C) - \mathcal{L}$$

where

$p_{i,t}^M$  is the collusive price charged by firm  $i$  in period  $t$ ,

$p_{i,0}^D$  is the price charged by firm  $i$  if it chooses to defect from the collusive agreement in the first period,

$p_{i,t}^C$  is the price charged by firm  $i$  in the continuation equilibrium after a defection by one firm,

$\Pi^i$  is the profit earned by firm  $i$  in a single period,

$-i$  indicates firms other than firm  $i$ ,

$\delta^t$  is the discount factor in period  $t$ , with  $\delta^t = e^{-r\tau}$  where  $r$  is the instantaneous rate of interest and  $\tau$  is the real time between periods,

$\theta$  is the probability that the antitrust authorities detect the cartel,

$\Omega$  is the penalty imposed on a cartel member who does not defect, and

$\mathcal{L}$  is any legal liability associated with a leniency application (which we assume will accompany defection).

We assume that  $\Omega > \mathcal{L}$ ; that is, an application for leniency is associated with a reduction in fines.

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- 1 See Nikki Tait, *EU Softens Antitrust Fine Stance*, FINANCIAL TIMES, June 22, 2010; Press Release, European Commission, Antitrust: Commission Fines 17 Bathroom Equipment Manufacturers EUR 622 million in Price Fixing Cartel (June 23, 2010) (where ten firms claimed inability to pay the fines, and, of these, "the fines of three companies were reduced by 50% and those of another two by 25% given their difficult financial situation"); Press Release, EUROPA, Commission Fines Prestressing Steel Producers EUR 518 million for Two-Decades Long Price Fixing and Market-Sharing Cartel (June 30, 2010); Press Release, EUROPA, Antitrust: European Commission Fines Animal Feed Phosphates Producers EUR 175 647 000 for Price-Fixing and Market-Sharing in First "Hybrid" Cartel Settlement (July 20, 2010) (where two companies applied for a reduction in the fine for inability to pay and one company was granted a seventy percent reduction). In 2009, there was one such decision affecting the calcium carbide and magnesium reagents cartel, where one firm was granted a twenty percent reduction. It is interesting to note that this is not mentioned in the press release, but is mentioned in the EC's summary decision where it states: "Various companies claim their inability to pay the fine. The claims were analysed based on point 35 of the 2006 Guidelines on Fines and were rejected. Outside of the application of point 35 of the 2006 Guidelines on Fines, the company Almamet received a reduction of its fine by 20% based on an evaluation of its special circumstances, its financial position and the required deterrent effect of the fine." Summary of Commission Decision of 22 July 2009, Relating to a Proceeding Under Article 81 of the EC Treaty and Article 53 of the EEA Agreement, Case COMP/39.396 – Calcium Carbide and Magnesium Based Reagents for the Steel and Gas Industries (Nov. 12, 2009).
  - 2 For classic contributions to this literature, see Gary S. Becker, *Crime and Punishment: An Economic Approach*, 76 J. POL. ECON. 169 (1968), and William M. Landes, *Optimal Sanctions for Antitrust Violations*, 50 U. CHI. L. REV. 652 (1983).
  - 3 The notation and presentation of the problem of cartel sustainability rely heavily on JEAN TIROLE, *THE THEORY OF INDUSTRIAL ORGANIZATION* 245-53 (1988).
  - 4 For a textbook presentation of these factors, see DAVID BESANKO, DAVID DRANOVE, MARK SHANLEY & SCOTT SCHAEFER, *ECONOMICS OF STRATEGY* 276-84 (5<sup>th</sup> ed. 2010). For a survey of empirical research, see Margaret C. Levenstein & Valerie Y. Suslow, *What Determines Cartel Success?*, 44 J. ECON. LITERATURE 43 (2006).
  - 5 Joseph E. Harrington, Jr. & Myong-Hun Chang provide a formal model in which firms expect this inequality to hold when a cartel is formed, but find that it can be overturned by future, unanticipated shocks: "Industries are given stochastic opportunities to form a cartel and do so if it is incentive compatible. Because of random market conditions, a cartel may persist or perish because it is no longer incentive compatible to collude; they may also be discovered by the antitrust or competition authorities. Cartel formation and demise is then a stochastic process..." Joseph E. Harrington, Jr. & Myong-Hun Chang, *Modeling the Birth and Death of Cartels with an Application to Evaluating Competition Policy*, 7 J. EUR. ECON. ASS'N 1400, at 1401 (2009).
  - 6 Margaret Levenstein and Valerie Suslow find that firm-specific measures of financial stability cause cartel breakup. Margaret Levenstein & Valerie Suslow, *Breaking Up Is Hard to Do: Determinants of Cartel Duration*, J.L. & ECON. (forthcoming 2011).
  - 7 See George Stigler, *A Theory of Oligopoly*. 72 J. POL. ECON. 44 (1964). For an empirical study of the impact of consumer concentration on export trading companies, see Andrew R. Dick, *When Are Cartels Stable Contracts?*, 39 J. L. & ECON. 241 (1996).

- 8 Levenstein & Suslow (2011), *supra* note 6. Analyzing a sample of 81 international cartels prosecuted by the DOJ and/or EC since 1990, we find that firm-specific measures of financial stability cause cartel breakup.
- 9 See John M. Connor & Robert H. Lande, *The Size of Cartel Overcharges: Implications for U.S. and EU Fining Policies*, 51 ANTITRUST BULL. 983, 1020 (2006).
- 10 The International Competition Network has reported that Switzerland, Turkey, Germany, South Korea, Canada, New Zealand, Serbia, Ireland, Russia, Brazil, and Austria each take inability to pay into account. In general, the ICN finds that: "In the case of authorities which may take into account the ability to pay, there is significant difference in the way how it is done [sic]. While some jurisdictions approach the question from a general legal point of view, applying the legal principle of proportionality, others take an economic approach by stating that the imposition of fine cannot lead to the driving out of the market of the undertaking in question, thus causing an additional harm to competition. (It is also possible that these two approaches are mixed in certain circumstances.)" *Setting of Fines for Cartels in ICN Jurisdictions*, REPORT TO THE 7TH ICN ANNUAL CONFERENCE, KYOTO (International Competition Network, Luxembourg), April 2008, at 26-27.
- 11 Point 35 of the EC guidelines states: "In exceptional cases, the Commission may, upon request, take account of the undertaking's inability to pay in a specific social and economic context. It will not base any reduction granted for this reason in the fine on the mere finding of an adverse or loss-making financial situation. A reduction could be granted solely on the basis of objective evidence that imposition of the fine as provided for in these Guidelines would irretrievably jeopardise the economic viability of the undertaking concerned and cause its assets to lose all their value." *Guidelines on the Method of Setting Fines Imposed Pursuant to Article 23(2)(a) of Regulation No 1/2003*, 2006 O.J. (C 210) 2, 3.
- 12 *Id.* For example, see Press Release, EUROPA, Antitrust: European Commission Fines Animal Feed Phosphates Producers EUR 175 647 000 for Price-fixing and Market-sharing in First "Hybrid" Cartel Settlement (July 20, 2010), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/10/985&format=HTML&aged=0&language=EN&guiLanguage=en>.
- 13 Press Release, EUROPA, EC Commission Action Against Cartels: Questions and Answers (June 30, 2010), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/10/290&format=HTML&aged=0&language=EN&guiLanguage=en>.
- 14 Andreas Stephan, *The Bankruptcy Wildcard in Cartel Cases*, 22 (ESRC Centre for Competition Policy & The Norwich Law School, University of East Anglia, CCP Working Paper 06-5, 2006, available at [http://www.uea.ac.uk/polopoly\\_fs/1.104482!ccp06-5.pdf](http://www.uea.ac.uk/polopoly_fs/1.104482!ccp06-5.pdf). We do not count the reductions in fine for the alloy surcharge cartel, which Stephan lists in Table 1. In 1998 the European Commission did reduce fines in the alloy surcharge conspiracy among stainless steel producers. However, these reductions were based on "extenuating circumstances," namely that the cartel was not successful at increasing profits during its early months, not on the inability of the firms to pay the fines at the time they were administered. ("On the other hand, the economic situation in the sector at the end of 1993 was particularly critical. The price of nickel was rising rapidly, while the price of stainless steel was very low. It should be noted that this particular situation applies only to the very beginning of the concerted action." Commission Decision, 98/247/ECSC, Case IV/35.814 (Jan. 21, 1998) ¶83 (relating to a proceeding pursuant to Article 65 of the ECSC Treaty). For more recent EC cases, see [http://ec.europa.eu/competition/antitrust/overview\\_en.html](http://ec.europa.eu/competition/antitrust/overview_en.html).
- 15 Press Release, Animal Feed Phosphates, *supra* note 1. The full statement in the EC press release is as follows: "Two of the undertakings have invoked their 'inability to pay' under point 35 of the 2006 Guidelines on fines. These applications have been thoroughly assessed on the basis of financial statements for recent years, projections for the current and coming years, ratios measuring the financial strength, profitability, solvency, liquidity, and relations with outside financial partners and with shareholders. The Commission also examined the social and economic context of each applicant and assessed whether its assets would be likely to lose significant value if it were to be liquidated as a

result of the fine. As a result of this assessment, the Commission accepted one of the applications and granted a reduction of 70% of the fine.”

- 16 There is a large literature on the different incentives created by rules versus discretion, but this analysis has generally not been applied to discussions of antitrust enforcement. See, e.g., Finn E. Kydland & Edward C. Prescott, *Rules Rather than Discretion: The Inconsistency of Optimal Plans*, 85 J. POL. ECON. 473 (1977).
- 17 U.S. SENTENCING GUIDELINES MANUAL §8C3.3 (2009), available at <http://www.uscc.gov/2009guid/TABCON09.htm>.
- 18 These cases are available at <http://www.justice.gov/atr/cases>.
- 18 Plea Agreement at ¶10, *United States v. Hynix*, No. CR 05-249 PJH (N.D. Cal. May 11, 2005), available at <http://www.justice.gov/atr/cases/f209200/209231.htm>.
- 19 Tefft W. Smith, *Comments for the Antitrust Modernization Commission Hearing on Criminal Antitrust Remedies* 31 (Nov. 3, 2005), available at [http://govinfo.library.unt.edu/amc/commission\\_hearings/pdf/Smith\\_Statement.pdf](http://govinfo.library.unt.edu/amc/commission_hearings/pdf/Smith_Statement.pdf).
- 20 James H. Mutchnik & Christopher T. Casamassima, *United States v. Hynix Semiconductor, Inc.: Opening the Door to the Inability-to-Pay Defense?*, THE ANTITRUST SOURCE, Sept. 2005, at 3 (citing Hynix financial statement).
- 21 See, e.g., Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 AM. ECON. REV. 1449 (2003).
- 22 For example: “Only in recent years have certain EU Member States adopted criminal sanctions for hardcore cartel activity—namely, the UK, Ireland, France, Estonia, Hungary, Romania, the Slovak Republic, and Slovenia. . . . Austria and Germany provide for criminal sanctions for bid-rigging only.” Nicole Kar, Fabio Falconi & Priya Sahathevan, *Recent Developments in Cartel Enforcement at EC and UK Levels: Adjusting the Mix of Carrots and Sticks*, 2 GLOBAL COMPETITION POL'Y 1, 7 (2008).
- 23 The optimal deterrence literature tends to be skeptical of the use of prison sentences. For a summary of recent views on this issue, see Robert H. Lande & Joshua P. Davis, *Comparative Deterrence from Private Enforcement and Criminal Enforcement of the U.S. Antitrust Laws* 6-9, (Univ. of San Francisco Law, Working Paper No. 2010-17, 2010), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1565693](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1565693).
- 24 For the U.S. Department of Justice, Antitrust Division appropriation figures, see Appropriation Figures for the Antitrust Division: Fiscal Years 1903-2010, available at [http://www.justice.gov/atr/public/division\\_operations.htm](http://www.justice.gov/atr/public/division_operations.htm) appropriations (last visited Oct. 10, 2010). For Federal Trade Commission, Bureau of Competition, appropriations, see FTC Appropriation History, available at <http://www.ftc.gov/ftc/oad/fmo/appropriationhistory.shtm> (last visited Oct. 10, 2010), and for the most recent figures through 2009, see FTC Appropriations/ Reauthorization, available at <http://www.ftc.gov/ocr/appropriations.shtm> (last visited Oct. 10, 2010), or the Congressional Budget summaries at Financial Documents, available at <http://www.ftc.gov/ftc/financial.shtm> (last visited Oct. 10, 2010).
- 25 See, e.g., Rosa M. Abrantes-Metz & Patrick Bajari, *Screens for Conspiracies And Their Multiple Applications*, 24 ANTITRUST 66 (2009) (providing a taxonomy and overview of academic work in this area, as well as examples of how antitrust authorities are increasingly using screens as part of their toolkit for detecting collusion); Philip Haile, Kenneth Hendricks, & Robert Porter, *Recent U.S. Offshore Oil and Gas Lease Bidding: A Progress Report*, 28 INT'L J. INDUS. ORG. 390 (2010) (providing an empirical analysis of bidding in this industry and initial thoughts on how their methodology might be used to detect collusion).

- 26 Levenstein & Suslow (2011), *supra* note 6.
- 27 Margaret C. Levenstein & Valerie Y. Suslow, *Cartel Bargaining and Monitoring: The Role of Information Sharing*, in *THE PROS AND CONS OF INFORMATION SHARING* 43 (Mats Bergman ed., 2006) at Table 1, 68-78.
- 28 *Id.*
- 29 Andreas Reindl makes this point: "One explanation for the increased interest may be that competition authorities recognize how their persistent enforcement practices against hard-core cartels make it more likely that firms try to find more subtle ways to coordinate their conduct and thus operate in the grey fringe of rules that prohibit rivals from expressly fixing price or output." Andreas Reindl, *Information Exchanges Among Competitors: The Commission Takes a New Look*, 9 *ANTITRUST CHRON.* 1, 2 (2010).
- 30 Levenstein & Suslow (2006), *supra* note 27, at 51.
- 31 *In re U-Haul Int'l Inc.*, No. 081-0157, FTC Decision and Order (July 14, 2010), available at <http://www.ftc.gov/os/caselist/0810157/100720uhauldo.pdf>. See also Edward Wyatt, *U-Haul to Settle With Trade Agency in Case on Truck Rental Price-Fixing*, N.Y. TIMES, June 9, 2010, at B3 (stating that the FTC "claimed that U-Haul had invited its closest competitor to fix prices on one-way truck rentals from 2006 to 2008"). The Canadian Competition Bureau recently concluded a consent order which prohibits six auto body repair shops from "directly or indirectly, engaging in any communication or exchange of information of any kind with each other relating to pricing of products or services to customers or insurance companies..." Press Release, Canadian Bureau of Competition, Competition Bureau Settles Case Involving Auto Body Shops (Feb. 16, 2007) (on file with authors).
- 32 See Draft: Guidelines on the Applicability of Article 101 of the Treaty on the Functioning of the European Union to Horizontal Co-operation Agreements, European Commission (May 4, 2010) available at [http://ec.europa.eu/competition/consultations/2010\\_horizontals/index.html](http://ec.europa.eu/competition/consultations/2010_horizontals/index.html). For a brief summary and commentary on the new draft rules on information sharing, see Frank Fine, *Brussels' Antitrust Revolution*, WALL ST. J., Aug. 4, 2010.
- 33 For example, potash producers agreed to restrict output and price competition as early as 1879. H.R. Tosdal, *The German Potash Syndicate: A Typical Kartell*, in *TRUSTS, POOLS, AND CORPORATIONS* 716 (William Z. Ripley, ed., 1916). For an overview of collusion over the twentieth century, see Harm G. Schroter, *The International Potash Syndicate*, in *INTERNATIONAL CARTELS REVISITED* 75 (Dominique Barjot, ed., 1994). For a discussion of the current state of competition in the potash industry, see Frederic Jenny, Letter to the Editor, *Potash Cartel and Double Standards*, FINANCIAL TIMES, Aug. 31, 2010, at 8.
- 34 For example, the German company Degussa has been convicted of price-fixing by the EC over the past fifteen years for the Methionine cartel (which, according to the details published by the EC covered the period 1986-1999), Methacrylate cartel (1997-2002), Organic Peroxides cartel (1971-1999), Hydrogen Peroxide and Perborates (1994-2000), and Vitamin B3 (1992-1998). There were additional convictions in the 1980s as well. See Edward Anderson & Gerald Berger, *Commission Fines Four Undertakings a Total of EUR 344.5 Million for Participating in an Acrylic Glass Cartel*, COMPETITION POL'Y NEWSLETTER (European Commission, Brussels, Belgium) Autumn 2006, at 34 n.2, available at [http://ec.europa.eu/competition/publications/cpn/2006\\_3\\_33.pdf](http://ec.europa.eu/competition/publications/cpn/2006_3_33.pdf).
- 35 For example, in 1977 General Electric and Westinghouse agreed to refrain from using most-favored customer clauses in contracts for large turbine generators. The DOJ was able to exact this agreement in large part because over a decade before, following their convictions for price-fixing, these two companies had signed a consent decree governing future pricing behavior. See Thomas E. Cooper, *Most-Favored-Customer Pricing and Tacit Collusion*, 17 RAND J. ECON. 377, 385-86 (1986).

- 36 See, e.g., *Cartel Settlements*, REPORT TO THE 7<sup>TH</sup> ICN ANNUAL CONFERENCE, KYOTO (International Competition Network, Luxembourg), April 2008, at 34, available at <http://www.internationalcompetitionnetwork.org/uploads/library/doc347.pdf> (“In France, the parties wishing to enter into a settlement agreement must commit themselves to modifying their behavior in the future, and the settlement agreement may include reports to the competition agency or any other measure allowing it to monitor the effective implementation of the compliance program... If effectively monitored, France believes that such steps can bring additional added value, insofar as companies that have already agreed not to challenge the findings of the agency and to settle the case willingly commit themselves, in addition, to some proactive behavior.”).
- 37 Press Release, Federal Trade Commission, FTC Order Settles Charges that FMC Corp. and Japan’s Asahi Chemical Co. Engaged in Illegal Anticompetitive Practices (December 21, 2000), available at <http://www.ftc.gov/opa/2000/12/fmc.shtm> (involving the microcrystalline cellulose cartel, which allocated markets geographically: “Under the terms of the proposed settlement, ... to erase any existing anticompetitive effects of the alleged conspiracy, FMC would be barred for 10 years from acting as the U.S. distributor for any competing manufacturer of MCC (including Asahi Chemical), and for five years would be prohibited from distributing in the United States any other product manufactured by Asahi Chemical.”).
- 38 See Press Release, Office of Fair Trading, OFT Sets Out Revised Approach to Director Disqualifications (June 29, 2010), available at <http://www.ofg.gov.uk/news-and-updates/press/2010/68-10> (stating that a director can be disqualified from acting as a director for up to 15 years if his company is involved in a breach of competition law and the court considers he is unfit to be concerned in the management of a company as a result”).
- 39 D. Daniel Sokol, *Cartels, Corporate Compliance and What Practitioners Really Think About Enforcement*, ANTITRUST LAW J. (forthcoming 2011), recommends such a policy: “A further step would be to make the guidelines themselves de facto enforceable.... Under such an approach, implementation of compliance programs would be required of all firms of a certain size threshold. ... The compliance threshold would be reached by a business’ annual turnover in the United States. Thus, heightened compliance requirements would be mandatory for any company doing a certain amount of business in the United States. Since the largest cartels are global, an increased level of compliance would improve compliance efforts in all countries. Consequently, this would bring antitrust closer to global optimal deterrence.” (footnotes omitted).
- 40 It has been argued that increased concentration between the passage of the Sherman Act in 1890 and the Federal Trade Commission Act in 1914 reflected exactly this paradox created by permissive merger and restrictive price-fixing policies. Levenstein & Suslow (2006), *supra* note 4, at 84.
- 41 *Commission Ignores Bad Past*, GLOBAL COMPETITION REV. (Jan. 16, 2004). See also Press Release, EUROPA, Commission Fines Companies in Copper Plumbing Tubes Cartel (Sept. 3, 2004), available at <http://europa.eu/rapid/pressReleasesAction.do?reference=IP/04/1065&format=HTML&aged=0&language=EN&guiLanguage=en>; *Commission Fines Three Companies in Industrial Copper Tubes Cartel*, COMPETITION POL’Y NEWSLETTER (EUROPA, Brussels, Belgium), Dec. 16, 2003.
- 42 Stephen Davies, Matthew Olczak & Heather Coles, *Tacit Collusion, Firm Asymmetries and Numbers: Evidence from EC Merger Cases 14* (Centre for Competition Policy, Working Paper No. 07-7, 2010).
- 43 Press Release, U.S. Department of Justice, *Department of Justice Dismisses Antitrust Lawsuit Against SGL Carbon* (May 8, 2003), available at [http://www.justice.gov/atr/public/press\\_releases/2003/201003.htm](http://www.justice.gov/atr/public/press_releases/2003/201003.htm).
- 44 See J. Thomas Rosch, Commissioner, Federal Trade Commission, *Implications of the Financial Meltdown for the FTC*, Address at the New York Bar Association Annual Dinner 11 (Jan. 29, 2009) (transcript available at <http://ftc.gov/speeches/rosch/090129financialcrisisnybarspeech.pdf>).

45 *Id.*

46 Sokol, *supra* note 39, at 23, argues that the threat of civil action provides little deterrence: “Both defense and plaintiff side lawyers note that private rights add to the total amount of civil penalties and that the threat of private rights is on the radar of general counsel. Treble damages have an effect of settlements because defense side trial lawyers will not be willing to take on such cases because of the potential for an adverse outcome. In this sense, cases that get litigated out are not representative of all cases. Indeed, the stakes will be higher in such cases. Yet, the threat of private rights seems not to have much of an impact at the firm level. Treble damages are not high enough to trouble the board of directors to push for very serious compliance.”

# Leniency Programs in Latin America: “New” Tools for Cartel Enforcement

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*Elisa V. Mariscal & Carlos Mena-Labarthe\**

The fight against cartels has become a central feature for many competition agencies. In Latin America, this fight is long overdue as the prevalence of cartels has historically harmed competition in both large and small markets. The introduction of immunity and leniency programs to fight hard-core cartels is an important challenge for many authorities in the region. They have to garner the necessary expertise to administer these programs, increasingly join and even cooperate with their international counterparts, and learn the nuances in their legal systems when implementing them and enforcing their competition legislation. Nonetheless, these programs have proven to be extremely effective, low-cost tools that have uncovered a number of cartels in a relatively short period of time.

We present some information on the differences among these programs in eight Latin American countries and discuss some of the advantages and challenges that each have faced in using this tool to investigate cartels. While we note that increases to monetary fines and sanctions would improve the effectiveness of these programs, we also believe that, on their own, there is room for leniency programs to grow and become more effective for antitrust agencies in Latin America.

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## I. Introduction

Competition enforcement poses a particular challenge for many developing countries. In designing and drafting their competition laws, many new authorities have benefited from the experience of more mature authorities; however, enforcement is set back in many developing countries due to a lack of material and human capital resources as well as limits in their legal powers, which remain a very real challenge in curtailing anticompetitive conduct. The fight against cartels in Latin America is no exception. In fact, the prevalence of cartels is a distinctly Latin American characteristic where economies have been historically plagued with concerted, naked agreements to fix prices and quantities, allocate markets, and rig bids, both in large and small markets. This has made immunity and leniency<sup>1</sup> programs a particularly effective tool for agencies in the region.

Although leniency programs have been in place in the United States since 1978 (substantially revised in 1993), and in Europe since 1996 (and also substantially revised in 2002 followed by further, less important revisions), Latin American competition agencies have only recently put in place similar programs. The first leniency program enacted in the region was in 2000, in Brazil, and was not followed by another until 2006 when Mexico amended its law to allow for this type of program. Today, as competition regulation and institutions appear rapidly in the region, many competition agencies have put in place leniency programs, while others are in the process of designing and incorporating such programs.

The fight against cartels has become a central feature for many competition agencies, thanks in part to recommendations from international bodies such as the OECD, characterizing cartels as “the most egregious violation of competition law.”<sup>2</sup> In addition, success stories based on the use of leniency programs in other developed countries, and the recent increase in international cooperation, led by more mature agencies and international bodies such as the International Competition Network (“ICN”), have made these tools and application know-how available to legislators and agencies in Latin America.<sup>3</sup>

In Latin America, investigations based on information provided by leniency applicants have led to stark increases in the number of cartels uncovered in the region, and significant headway has been made in the fight against cartels. Based on these heartening results, competition agencies are now acting in a more congruous fashion; not only citing cartel investigations as priorities in their enforcement decisions, but also aligning their efforts and resources in uncovering and prosecuting cartels.<sup>4</sup>

IN FACT, THE PREVALENCE OF CARTELS IS A DISTINCTLY LATIN AMERICAN CHARACTERISTIC WHERE ECONOMIES HAVE BEEN HISTORICALLY PLAGUED WITH CONCERTED, NAKED AGREEMENTS TO FIX PRICES AND QUANTITIES, ALLOCATE MARKETS, AND RIG BIDS, BOTH IN LARGE AND SMALL MARKETS.

In addition, there appear to be a number of indirect benefits that are arising from the application of these programs. Chief among them is increased transparency about the workings of the competition agency; a necessary ingredient for a program that relies on honoring clear and predictable rules that provide incentives for agents to agree to participate. Another is increased cooperation among agencies regarding exchange of experiences and best practices, which has benefited both sender and receiving agencies. This cooperation has come about within international bodies (ICN, OECD, Latin American, and Iberoamerican Competition Fora) and through both bilateral technical assistance and informal case experience and exchanges between agencies—vital ingredients in building a professional and specialized team of cartel investigators in the region. Finally, another of the indirect positive effects, we would argue, is a better understanding within the region of the harm of hard-core cartels and the role played by regulators—and the regulated—in fighting them.

Leniency programs are set in place for the regulator to obtain help from any economic agent participating in a cartel, but it is not enough to have a program in place if there are no safeguards that will convince agents to collaborate. In Latin America, many countries grapple with confidentiality issues between the regulators and the regulated. The effectiveness of these programs, therefore, rests largely on overcoming the doubts of economic agents about regulators’ discretion in the use of the information provided by applicants (including their identity) and convincing the applicants of the agency’s ability to successfully administer the process of a cartel investigation under leniency based on the confidential information provided. Thus, leniency applicants and information derived from these programs for successful cartel investigations should steadily rise as competition agencies become more adept at handling leniency applications, and economic agents or undertakings become more comfortable reporting their participation in cartels as well as dealing with the risks, such as civil actions, that may arise from applications.

The paper is structured as follows. In section II we present some general features about leniency programs in several Latin American jurisdictions and also compare some of the differences and similarities among them. Section III focuses on the design and operation of these programs in eight countries in the region: Argentina, Brazil, Chile, Colombia, El Salvador, Mexico, Panama, and Peru. The last section presents some thoughts about the future of leniency in cartel enforcement from a Latin American perspective.

## II. A Comparison of Latin America’s Leniency Programs

Although initially categorized as a snowball effect in the American continent, coming from the north to the south, the southern region has demonstrated its enormous capacity to generate some of the best institutions and aggressive enforce-

ment in this field. The advances on this front of anti-cartel activity may be explained in many ways, but a strikingly common ground has been the increase of effective enforcement tools for competition authorities. These tools have two main cornerstones: surprise searches, or so called “dawn raids,” and leniency programs.

According to the OECD, leniency programs have played a central role in the fight against cartel activity in every country with successful competition regulation. It is a relatively cheap investigative tool that provides incentives to increase the likelihood that a firm approaches the authority to confess their participation in a cartel, and provides sufficient information to open an investigation in exchange for a “best deal.”<sup>5</sup> The information is particularly relevant given the difficulty and expense involved in attaining it; in Latin American jurisdictions this difficulty increases with the lack of legal powers and resources available to competition agencies.

Given the simplicity of the program and the effectiveness of its incentive structure, it seems that its adoption is a natural step to take for cartel-fighting authorities. As competition regulation appears rapidly in countries all over the continent, including Bolivia and Venezuela, many countries have adopted leniency programs resembling other similar programs that have succeeded and evolved in other civil law countries. The years 2009 to 2010 have been fairly significant in this area, as there have been two new leniency programs in Latin America and several projects of implementation have been proposed for their respective legislative processes.

As Table 1 illustrates, with the growth of Latin American competition regulation, leniency programs have started spreading, with 6 countries in the region having begun to implement these programs over the last three years, leaving only Brazil and Mexico with a leniency regulation enacted prior to 2007.

Country	Entry into force	Responsible authority	Relevant Act or regulation
Argentina	Not yet in force	National Court of Competition Defense	Art. 49 Bis of the Competition Defense Law N° 25.156
Brazil	2000	Secretariat of Economic Law (primarily) with support from the Brazilian Competition Commission	Law 8,884/2000
Chile	2009	National Economic Attorney	Art. 39 Bis of Legislative Decree N° 211
Colombia	2009	Superintendent's Office of Industry and Commerce	Art. 14 of Law 1340 (2009)

*Continued*

**Table 1**  
**Legislation Underlying Leniency Programs in Latin America**

**Table 1,  
continued**

Country	Entry into force	Responsible authority	Relevant Act or regulation
El Salvador	2008	Superintendent's Competition Office	Art. 39 of the Competition Law
México	2006	Federal Competition Commission	Art. 33 Bis 3 of the Federal Law of Economic Competition
Panama	2007	Consumer Protection and Competition Defense Authority	Art. 104 of Law 45 (2007)
Peru	2008	National Institute of Competition Defense and Intellectual Property Protection	Art. 26 of Legislative Decree N° 1034

Source: our own compilation

This wave of leniency introduction has resulted in a series of programs that are very similar to each other, with standardized procedures and level features. As we will discuss, Latin American programs are very much alike but, at the same time, due to differences in the economic makeup of different jurisdictions as well as institutional arrangements and government postures, there is still a significant gap and variability in their quality and the agency's experience in implementing some of the programs.

**Table 2**  
**Cross Comparison of Certain Features in Leniency Programs in Latin America**

Country	Marker System	Number of participants	Regulations for the cartel leader	Type of fine reduction	Percentage of fine reduced
Argentina	Yes	Exemption: 1	Cannot be exempted	Administrative fine reduction only	Exemption: 100%
		Reduction: 3	Can participate in fine reduction		Reduction: 50%, 30% or 20%
Brazil	Yes	One	Cannot participate in the program	Administrative and criminal fine reduction, not civil	1/3 or 2/3 if the investigation already began, up to 100% if it has not

*Continued on next page*

Table 2,  
continued

Country	Marker System	Number of participants	Regulations for the cartel leader	Type of fine reduction	Percentage of fine reduced
Chile	Yes	Exemption: 1	Can participate, but may not be granted the exemption/reduction	Administrative fine reduction only	Exemption: up to 100%
		Reduction: no limit			Reduction: up to 50%
Colombia	No	No limit	None	Administrative fine reduction only	Up to 100%
El Salvador	Yes	One	None		Not legally defined
Mexico	Yes	No limit	None	Administrative fine reduction only	Immunity: up to 100%
					Reduction: up to 50%, 30% or 20%
Panama	Yes	Only the first one	Cannot participate in the program	Any fine or sanction may be reduced	Up to 100%
Peru	Yes	No limit	None	Administrative and criminal fine reduction, not civil	Up to 100%

Source: our own compilation

While most countries share the use of a marker system to hold an applicant's position in line for leniency, Colombia is the exception. Also, there is no clear consensus as to the treatment of the ringleader; in some countries, such as Brazil and Panama, the ringleader cannot participate in the leniency program.

There is no consensus either as to the number of applicants that can receive leniency. In some countries there are no limits (see Colombia, Mexico, and Peru); others limit this protection to only the first one (Brazil, El Salvador, and Peru); still others place differential limits on exemptions to the law and reduction of fines (Argentina and Chile). For firms that have participated in interna-

tional cartels and for the lawyers advising them on where and when to apply for leniency, these differences can pose a significant problem.

Additionally, agency investigative powers differ markedly among Latin American countries, regardless of possible similarities in their legal systems. Criminal sanctions for participation in a cartel are not widespread (only Brazil, Panama, and Peru foresee reductions in criminal sanctions and there is no evidence of Panama or Peru ever imposing criminal sanctions for cartel conduct in any case), and fine reductions in many cases only include administrative fines. As to civil fine reductions, this issue is not yet a problem in some countries where the possibility of recovery of civil damages by private parties and classes of individuals is not possible or the norm. Nonetheless, as agencies and competition enforcement evolve, these will be issues to consider when deciding to come forward, especially where new forms of class actions or collective actions are becoming a reality, as is the case in many of these countries.

As is the case in the United States and Europe, Latin American countries have adopted different types of fine reductions for those agents that are not first to report a cartel. In some countries only the first can apply and receive benefits from a leniency program (Brazil, El Salvador, and Panama). In other cases, although full leniency is not available, fine reductions can be granted to those who provide useful information after an initial applicant has contacted an agency with information. Those agencies with no protection or fine reduction for subsequent whistleblowers (others in line) have begun to explore the possibility of settlements. This has been the case, for example, of Brazil, where the CADE recently settled without following a full investigation with a "second in line" and reduced its fine significantly.

Finally, one of the elements missing from these tables and the discussion above is the difficulty in actually implementing leniency programs; that is, effectively administering a leniency program. One of the goals in the Latin American region should be the gaining of experience and the fostering of cooperation between and among countries that share a similar type of legal system and the same underlying social and, in many cases, market structures.

Issues that will surely arise will be dealing with the requirements of protection for parties in cartel cases that have affected the United States markets. In these cases the issue of discovery in civil actions may pose a potential cost that is more important to the firms than the actual threat of an administrative action in some Latin American countries. Agencies will have to be flexible enough to accommodate the needs for an oral application and delays in translation of documents. They will need to handle international cooperation well in all stages, including the application phase and investigation phases (involving the coordination of searches and the public actions needed), as well as case closing and settlements.

### III. Country Experiences with Leniency Implementation

#### A. ARGENTINA

Argentina's leniency program is still developing, even though it appears ready to be incorporated into the country's competition regulatory framework. The bill introducing a leniency program already includes what could very possibly be the final text that will appear in the Argentine Competition Defense Law. The bill shows a broad field of prior study into this subject, and demonstrates an important degree of international cooperation, making it a world-class program in light of international standards.

The program consists of two main benefits for applicant firms: an exemption benefit and a reduction benefit. The first is attainable only by the first economic agent to come forward and approach the National Court of Competition Defense (*Tribunal Nacional de Defensa de la Competencia*), and who is able to meet certain requirements. These requirements include not being or having been the cartel leader and a "cease and desist" condition that forces the firm to stop its conduct as a cartel member, among others. The exemption benefit completely exonerates the cartel member from any economic fine. An economic agent who cannot meet the requirements for exemption can apply for a reduction benefit. This part of the program can reduce the final amount of the fine by 50, 30, or 20 percent, with the numbers varying according to the chronological order in which the application was received and the number of active members that participated in the cartel.

The National Court of Competition Defense would be the authority in charge of implementing this program through a special division called the Leniency Directorate, which would have responsibility for investigations and administering a petitioner's registration. This registration is secured by a marker system that verifies the chronological order of all applications.

Some of the special features of the Argentine leniency program are its willingness to introduce detailed regulations for a company's managers and legal representatives, as well as a "Leniency Plus" feature. Leniency Plus is a provision that encourages cartel participants in a separate cartel (usually in another market or industry) to come forward. This program offers a reduction in the penalty that would otherwise have been imposed in relation to the first cartel—over and above the reduction it would have received for its cooperation with respect to its activities in the first.

SOME OF THE SPECIAL FEATURES OF THE ARGENTINE LENIENCY PROGRAM ARE ITS WILLINGNESS TO INTRODUCE DETAILED REGULATIONS FOR A COMPANY'S MANAGERS AND LEGAL REPRESENTATIVES, AS WELL AS A "LENIENCY PLUS" FEATURE.

The program features and the detail with which the program has been outlined already represent a promising start for the Argentinean competition regulator, and demonstrate a detailed knowledge and understanding of international developments and experience in these matters. These ingredients can be an enormous step forward in the fight against cartels in this country and a powerful weapon to strengthen their cartel investigations. However, implementation is key, which may pose some new issues based on certain features of the Argentinean legislation and institutions.

## **B. BRAZIL**

Brazil was the first Latin American country to introduce a leniency program in its competition regulation. Their Law 10.149/2000, which amended Law 8,884/1994, allowed Brazil to become the first country in the region to prosecute cartel activity by means of a leniency program. Another important feature of Brazil's program is that all types of immunity and reductions apply not only to administrative procedures, but can offer full criminal immunity to the applicant.

Administered primarily by the Secretariat of Economic Law, this program saw action for the first time in 2003. Since then, Brazilian competition authorities have given cartel investigations a top priority status, devoting 75 percent of their resources to detect and fight cartels. From our records, there are approximately 15 leniency agreements signed or under negotiation in this country.

Since Brazilian regulation does not distinguish between hard-core cartels and other type of cartels, this program is applicable for participants in any kind of cartel or collusive activity. It has a strict "first in" policy, in which only one member of the cartel can enjoy the benefits of the program, as well as a marker system that excludes anyone who isn't the first agent to come forward, subject to a 30 day wait period to enable the applicant to gather and provide information that may better support its leniency application.

The program is especially strict in eliciting cooperation from the applicant in order to grant the leniency, and also has a special feature in that there is no obligation by the authority to keep information confidential from other investigated parties. This latter characteristic is particularly worthy of mention, given the danger that the leniency applicant faces in being uncovered by other members in the cartel and the complications this can bring regarding international cooperation and investigation. The potentially negative effects have been dampened, however, by offering the possibility of an informal guidance on a confidential basis prior to submitting a formal application, thus allowing the applicant easier access to the program and fostering more openness with the authorities.

An immunity plus factor is included in the program, which grants up to a one-third reduction in the original cartel fine. It also includes a criteria based on the "initiated" status of the investigation. This means that if the agency has not

started an investigation at the time of the immunity request, the applicant can be granted up to a 100 percent reduction on the infraction. Instead, if the agency has already begun an investigation, the agent can only be granted a fine reduction between one- and two-thirds of the resulting monetary sanction. Employees can be considered part of the program provided they file according to the established procedures.

Without a doubt, the Brazilian leniency program has had the most applicants in Latin America and the Brazilian authorities are the most experienced in successfully using this enforcement tool, regardless of some recent questions that have arisen about its ability to handle confidentiality and its incompatibility with other competition programs in the country. Nonetheless, these issues arise from experience in using the program and highlight the fact that Brazil is on the right track in implementing a successful leniency program and coping with its challenges.

WITHOUT A DOUBT, THE BRAZILIAN LENIENCY PROGRAM HAS HAD THE MOST APPLICANTS IN LATIN AMERICA AND THE BRAZILIAN AUTHORITIES ARE THE MOST EXPERIENCED IN SUCCESSFULLY USING THIS ENFORCEMENT TOOL, REGARDLESS OF SOME RECENT QUESTIONS THAT HAVE ARISEN ABOUT ITS ABILITY TO HANDLE CONFIDENTIALITY AND ITS INCOMPATIBILITY WITH OTHER COMPETITION PROGRAMS IN THE COUNTRY.

### C. CHILE

The Chilean Leniency Program is very similar to Argentina's current bill for a leniency program in its exemption/reduction aspect, with some slight deviations that offer new and interesting features. Those who worked in the project made sure to consult all advanced competition jurisdictions for design suggestions. For example, it is interesting to observe a special measure that concentrates on false cooperation, which makes explicit that any economic agent that states, offers, or displays false information when participating in the program is subject to criminal sanctions. Contrary to Brazil's program, Chile's leniency program is very careful when dealing with the confidentiality of the applicant, which is considered a big plus of this program. The program states that confidentiality is required not only of the authority but also of the petitioner.

Aside from otherwise common features of a leniency program, Chile's program puts in doubt the situation with the cartel ringleader. Although the cartel leader is not literally prohibited from participating in the program, it is at the National Economic Attorney's discretion to offer the resulting exemption or reduction if, in fact, the applicant was the cartel ringleader. This will most probably discourage cartel leaders from applying to the program because of the uncertainty and lack of protection surrounding the rules for leniency.

An important discussion in Chile has been the requirement to stop the cartel activity in order to secure the benefits of the program. It is a controversial subject because of the suspicion it raises, and is an element that all jurisdictions should consider when agreeing to include such a condition in a leniency program. Mexico’s experience has also proved this.

Chile’s program is very recent in its implementation; therefore, it lacks an actual reference point to assess success. Chile will have to learn from its experience with the program, while evaluating the resulting information.

#### D. COLOMBIA

Colombian regulation experience in immunity matters is scarce. In fact, Colombia’s leniency program is the most recent in the region so, as is the case with Chile, it is very hard to evaluate its relative success. The general view that this program offers, however, leads one to conclude that it is very loosely regulated and leaves much to the agency’s discretion. Through one fairly brief article in Law 1340, the Superintendent’s Office of Industry and Commerce is empowered to administer a not easily enforceable program with very little secondary regulation. Therefore, it has yet to be seen if this practice turns out to be effective.

THERE ARE SIGNS THAT COLOMBIA  
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A WORK IN PROGRESS.

There are signs that Colombia considers its regulation a work in progress, and there appear to be plans to establish a more specific ruling.

The open-endedness of the regulation allows many agents to apply for the program, and offers almost complete discretion to the authority in undertaking any decisions. In practice, however, the results can be good or bad, and largely depend on the agency’s competence and its willingness to use the information derived from leniency applicants and from their investigations to learn from experience.

#### E. EL SALVADOR

The Superintendent’s Competition Office of El Salvador has established a well-defined leniency program with clear guidelines in a very user-friendly web page. One of the elements worthy of mention about this program is its requirement that the petitioner demonstrate its own participation in the anticompetitive practice. The program also features a first-in policy for leniency applicants, with the requirement that the firm be a “one time only” applicant, meaning that they cannot apply twice for the program and can only receive its benefits once. This obviously eliminates the possibility of the contrary “leniency plus” policy.

One last thing to mention is the fact that the core of this program is based on conduct characterized as a hard-core cartel, a distinction that is rarely important in the leniency programs of this part of the world.

## F. MEXICO

Mexico announced its leniency program as part of a package of reforms to its law in 2006. The program included some of the best practices that other successful programs had in place, including a marker system and a promise to cooperate during the investigation process. Leniency is offered for the first applicant with a reduction of fines equivalent to one daily minimum wage (less than U.S. 5 dollars – this amount is the minimum the authority can possibly charge as it is legally impeded from charging nothing) and fine reductions can also be obtained for subsequent applicants (50, 30, or 20 percent) provided they offer new elements of conviction and comply with the same conditions as an applicant who obtains full leniency.

The program was highly influenced by its European and American counterparts, and has only a very narrow difference between full leniency and reduction in benefits; nevertheless, the agency has made sure that the incentive to come forward first remains important. This program also offers the possibility of an informal guidance on a confidential basis to economic agents, prior to submitting information. Using international precedent, the program took a step forward with the introduction of internal guidelines regarding the law's applications; a type of soft law that aims to unify interpretative criteria inside the Commission and clarify the program's implementation to those interested in applying.

Some of its distinct features include the fact that more than one petitioner is allowed and there is no ringleader regulation. It is a hard-core cartel based program with a special disposition underscoring the absolute discretion of the Commission in matters relating to the evaluation of information and cooperation. This disposition is aimed at invalidating any judicial or administrative resolution that could attack a Commission resolution based on these arguments.

Even though there are discussions of reform projects and possible changes that could improve it, especially if criminal sanctions were to be introduced for cartel conduct as is currently being discussed in Congress, the program as a whole has led to fairly positive results with only some details still needing attunement to better serve the interests of competition and cartel investigations.

Its few years of experience with the program have allowed the Federal Competition Commission (“CFC”) time to learn about its implementation, and enjoy some of its results. Over its lifespan, 7 investigations have been opened through leniency applications, allowing the CFC to obtain information that

THE PROGRAM WAS HIGHLY INFLUENCED BY ITS EUROPEAN AND AMERICAN COUNTERPARTS, AND HAS ONLY A VERY NARROW DIFFERENCE BETWEEN FULL LENIENCY AND REDUCTION IN BENEFITS; NEVERTHELESS, THE AGENCY HAS MADE SURE THAT THE INCENTIVE TO COME FORWARD FIRST REMAINS IMPORTANT.

would otherwise have been inaccessible or only accessible at a very high cost. Although much is yet to be done to harness the investigative powers of the CFC and increase fines, this leniency program has already proven itself worthy of investment as an invaluable tool inside the Commission for cartel investigation purposes.

### G. PANAMA

A clear, one paragraph disposition is all that Panama's legislation needed to introduce their leniency program, where only the first agent who applies can receive the benefits, which can be up to a 100 percent exoneration of sanctions. Panama's hard-core cartel based program also denies the benefit of exemption and reduction to the cartel leader or instigator.

A salient feature of this legislation is a disposition that includes a reward of 25 percent of imposed fines granted to the person who comes forward. This figure can be interpreted as a reward program just for denouncing a cartel. This apparently roughly sketched benefit should encourage us to follow the development of Panama's leniency program to evaluate its results.

### H. PERU

Peru's leniency regulation is fairly simple: The informer needs to provide the agency with determinant information leading to a sanction against cartel members in order to be granted exoneration. It includes criminal and administrative sanctions against the officials who do not honor the exoneration agreement.

It is also noteworthy that there is a sentence expressly stating that the National Institute of Competition Defense and Intellectual Property Protection, along with other administrative or judicial authorities, are obliged to refrain from instituting any procedure against the agent who cooperates in accordance with an agreement previously established by the authority and the agent.

PERU'S LENIENCY REGULATION  
IS FAIRLY SIMPLE

If the information received from the agents who seek reductions is new and relevant, they can have the benefit.

Again, there are some important innovations in these program, especially in the field of authority boundaries; a feature of extreme importance in our legal traditions and scarcely regulated in other jurisdictions in the region.

## IV. Concluding Remarks

Latin American leniency programs have been inspired to a large degree by the U.S., U.K., and European experiences in using these tools to more effectively prosecute mostly hard-core cartels. It is good news to see that the first big steps

have been taken towards successful cartel prosecutions in many countries in the region; that is, in the program implementation. It is now important to ensure that these programs do not become simple words on paper, and that information derived becomes useful evidence and leads to successful cartel investigations. Success in Latin America will also strengthen resolve in other developing countries to enact leniency programs and more effectively enforce their own competition regulations using these tools.

Egregious sanctions are needed for the most egregious violations to competition laws and principles. Leniency will not work correctly where there are no hard sanctions that correspond with both the damage such a conduct causes and also the benefits the firms derive from them. Hard sanctions should also reflect the difficulty of detection. In this regard, criminal sanctions are among the most important topics that competition authorities have to consider within these programs and, with them, the possibility of criminal leniency. Having criminal sanctions and criminal investigations can become quite a challenge for authorities in civil law countries. Moreover, this combination implies that a dual track is necessary in a certain legal context. If criminal sanctions are to be adopted, the most important attention should be given to harmonizing leniency programs in the criminal context. The worst outcome for competition enforcement is having criminal sanctions and a leniency program that does not cover them.

Also important are effective civil claims, which in many parts of Latin America are still not important enough to deter anticompetitive behavior—nevertheless society in the region is moving towards them. In this case, the competition regulator will have to evaluate whether these claims can weaken their programs if leniency does not include them, or if there are other means by which some level of leniency can be attained while allowing affected parties compensation for conduct that clearly harms competition and consumers. An interesting example is the possible reduction in the United States of treble damages to single damages, which can work very well in favor of leniency. In any case, the participation of private parties in competition enforcement is needed.

Much is left to be done and much more is left to be seen, but the Latin American race towards cartel prosecution is well underway. As we see some simple regulations in most of these legislations, we have to stop and think that simplicity may be the way of gradually improving the program. On the other hand, we must remember that the battle we fight with this program is not only a battle against cartel members, it is also a battle against our own legal systems, which are still unfamiliar with these procedures and present many bumps in the process. Because of these reasons, lack of regulation can have two strong counterproductive problems. The first is the under protection of the citizen who, after all, is the object and purpose of the competition regulation. The second is that an under-regulated economic agent can easily escape from the fines imposed by the competition authority and avoid its sanctions through legal formalities.

A clear leniency program with well-established authoritative attributions can lead to a non-defendable position for the guilty agents. This is where Latin American legal systems can become harmonized through competition regulation and cooperation in implementation; these kinds of problems need to be foreseen from the moment that legislation is designed. Consequently, it is of the utmost importance that agencies in the region maintain and ensure close relations so that sharing experiences can lead to an improvement in joint cartel investigations, something that is becoming more common. Participation in international

groups and organizations, such as the International Competition Network, is now a must for competition agencies as well.

IN ANY CASE, WE BELIEVE  
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In any case, we believe the principles of leniency programs apply equally to all legislations; they are necessary to break up the silence that surrounds cartel activity. They produce more results when the leniency offer is clear and simple, the process is predictable and stable, officers are credible, and risks of hard sanctions

are also clear. With these principles, cooperation of the applicant is ensured. Agencies should encourage and promote applicants to apply in other jurisdictions and cooperate significantly in all stages of the process. If these conditions are met, agencies in the region will have transparent, secure, credible, and confidential programs that will surely produce results.

In addition, agencies and legislators in the region should also consider including some specific characteristics that are not seen regularly in their programs, such as looking at the personal responsibility of employees engaging in cartel conduct, and then offering these employees an opportunity to come forward as whistleblowers themselves, allowing for oral applications and leniency plus programs. Agencies also should not lower their guard regarding the need to better align incentives for both individuals and companies to participate in these types of programs, be it through increased fines or through monetary compensation for those willing to come forward with useful information, as is the case in Korea.

Finally, we are well aware that many professionals in the area of competition are moving the discussion away from the benefits of leniency programs to the effects that such programs have had on dissuading the formation of cartels, and the type of cartels that are more likely to be caught by these programs—that is, whether cartel members seeking leniency are indeed the more harmful. In some sense the discussion is questioning whether agencies should better expend their resources on detection of cartels rather than “whistle blowing.”<sup>6</sup> It may be the case that more mature agencies, with greater access to resources and greater powers, are in a position to consider these options. From our point of view, Latin America is still benefiting from an increased detection rate of cartels through

leniency programs, which have proven to be effective and low cost tools. Furthermore, we should focus our efforts to increasing our effectiveness in fighting cartels, a historic and generalized anticompetitive behavior that has plagued our economies. ▼

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- 1 Legislations and legal practice differentiate among the terms “immunity program,” “leniency program,” and other related terms. In general, commentators have identified as “immunity” a program that totally excludes prosecution or sanctions, and as “leniency” a program that represents a reduction of fines. In reality most jurisdictions that have such programs have a combination of both. For the purpose of this paper we will refer to leniency programs in general, which may include an immunity program or a leniency program alone or an immunity program plus a leniency program, depending on the jurisdiction.
  - 2 OECD, Recommendation of the Council concerning effective action against Hard Core Cartels (1998) <http://www.oecd.org/dataoecd/39/4/2350130.pdf>.
  - 3 ICN Cartel Working Group.
  - 4 See, for example, the number of cartel investigations (or *prácticas monopólicas absolutas*) resulting in a finding of responsibility by the Mexican competition agency from 2008 to the present, compared to conduct investigations (or *prácticas monopólicas relativas*). Available at <http://www.cfc.gob.mx> (Informe Annual 2010).
  - 5 See, for example, OECD Policy Brief: *Using Leniency to Fight Hard Core Cartels* (2001), available at <http://www.oecd.org/dataoecd/60/8/21554908.pdf>.
  - 6 Giancarlo Spagnolo, *Leniency and Whistleblowers in Antitrust*, HANDBOOK OF ANTITRUST ECONOMICS (Paolo Buccirossi ed.) (2008).



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*China:  
Intellectual  
Property*

# China's Approach to Compulsory Licensing of Intellectual Property Under Its Anti-Monopoly Law

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While a discussion of the misuse of Intellectual Property Rights (IPRs) can be quite broad, this paper focuses on one aspect of a significant question regarding the relationship between antitrust and IP laws: Whether and on what terms courts and competition regulators should compel a dominant firm to license its powerful intellectual property to a smaller rival. As many know, this question has already generated substantial controversy, largely because the relevant law in the United States and Europe provide markedly different answers. In China's context, since compulsory licensing of IP is so complicated and subtle an issue, it may be too soon to recommend any specific approach. Certainly, more discussion and research are needed. However, as outlined in this paper, certain preliminary steps should be taken.

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## I. Introduction

Over the past several decades, the competition law community has recognized that intellectual property (“IP”) law and antitrust, or competition, law share the fundamental goals of enhancing consumer welfare and promoting innovation. Indeed, the modern understanding of these two disciplines regards IP and antitrust as working in tandem to help bring new and better technologies, products, and services to consumers at lower prices.

In China, antimonopoly laws and institutions have developed only recently. IP and antimonopoly laws have therefore not been used to achieve the goals of promoting innovation and competition. With the enactment of the Trademark Law of 1982, China began to install a systematic legal framework for IP, at an early stage of the period of economic reform and opening.. But a comprehensive antitrust regime was established only recently, after the Anti-monopoly Law (“AML”) took effect in 2008. While the extent to which China’s IP laws are and will be actively enforced is a matter of conjecture, the creation of institutions for IP protection has contributed significantly to the inflow of foreign direct investment (“FDI”) and technology transfer, the driving forces of China’s sustained economic growth.

IT HAS ALSO ALERTED THE CHINESE AUTHORITIES TO THE IMPORTANCE OF IP PROTECTION, THE URGENCY OF PROHIBITING THE ABUSE OF IP, AND THE RELATIONSHIP BETWEEN IP PROTECTION AND THE MAINTENANCE AND PROMOTION OF COMPETITION.

As China’s economy continues to open and expand, disputes regarding IP infringement have increased. Since China’s entry into the World Trade Organization, it is estimated that the infringement damages paid by Chinese firms to international companies that manufacture DVDs, TV sets, digital cameras, MP3, cars, telecommunications equipment, and so on have surpassed one billion dollars.<sup>1</sup> The imposition of these huge fines has placed a heavy burden on some Chinese firms and affected certain industries quite severely. It has also alerted the Chinese authorities to the importance of IP protection, the urgency of prohibiting the abuse of IP, and the relationship between IP protection and the maintenance and promotion of competition.

Over the past few years, while the Chinese government has continued its efforts to enhance the protection of IP, e.g. by creating the Steering Group of Intellectual Property Protection in 2004, it has strengthened regulations prohibiting the abuse of IP, especially with respect to IP restraints on competition. The milestone AML enacted in 2007 articulates clearly for the first time the fundamental legal principles guiding antimonopoly enforcement at the intersection of IP and antitrust. Moreover, the Outline of the National Intellectual Property Strategy released on June 5, 2008 indicates that preventing abuses of intellectual property rights (“IPRs”) forms part of the core of the Chinese national IP strategy.

While a discussion of the misuse of IPRs can be quite broad, this paper focuses on one aspect of a significant question regarding the relationship between antitrust and IP laws: Whether and on what terms courts and competition regulators should compel a dominant firm to license its powerful intellectual property to a smaller rival. As many would know, this question has already generated substantial controversy, largely because the relevant law in the United States and Europe provide markedly different answers to it, differences that have been highlighted and will doubtless be exacerbated by the decision of the European Court of First Instance (since renamed the General Court) in the *Microsoft* case.

Modern economic theory suggests that, as a remedy for the abuse of powerful IP, compulsory licensing can serve two main purposes. The first relates directly to consumer welfare and would compel licensing in order to improve health or save lives. The second, the focus of this paper, would seek to remedy the anticompetitive misuse of IP by a dominant firm, which has foreclosed smaller rivals from market access or otherwise harmed consumers. This use of compulsory licensing aims to promote competition, or to remedy the effects of IP misuse, rather than to address consumer welfare directly.

In standard economic terms, compulsory licensing provides a remedy for static inefficiency—the deadweight loss incurred when an IP owner appropriates rents by excluding others from the relevant market and charging a monopoly price. This remedy, however, comes at a cost: Dissipating rents through compulsory licensing will reduce returns from research and development (“R&D”), discouraging innovation and creating dynamic loss. The dynamic loss will occur in several ways: the dominant firm will refrain from investing further and in the future; its rivals will be spared the need to invent around the dominant IP, and will thus forego efforts that could result in welfare-enhancing products; and other firms in other markets, now and in the future, will also be more reluctant to invest. A comprehensive approach to compulsory licensing must therefore attempt to balance static gains against dynamic losses.

What is the best balance? At the present time, there may not be one universally acceptable response. In some ways, the answer is country-dependent, since it hinges in an important sense on “local” conceptions of the value of intellectual property, the place of the dominant firm, the efficacy of market mechanisms, and the importance of long-term incentives for economic growth. The approaches of the United States and the EU are representative. Relevant case law in the United States values the dominant firm, trusts in market mechanisms, and places great importance on maintaining incentives for innovation. It is willing to tolerate short-term consumer harm in exchange for what it perceives to be the greater long-term benefit of strong incentives to invest. Consequently, compulsory licensing is rarely imposed by antitrust courts or advocated by enforcers. In contrast, EU law focuses on the short-run inefficiency of monopolistic distortion and the attendant and immediate harms to consumers, while placing much less

weight on incentives to innovate. Therefore, compulsory licensing has been ordered more frequently.

China has not yet produced a case or administrative decision involving compulsory licensing. But it faces the challenge of designing a sound compulsory licensing regime if it wants to make full and wise use of the newly enacted AML to prohibit the misuse of IP to restrain competition as well as to encourage investment in innovation. It is a difficult task, which will require not simply balancing IP protection and the promotion of competition, but will also invoke “political” aspects of IP regulation that may affect policy in a developing country like China. For example, since most patents with high technical content in China have been granted to non-residents, authorities may be inclined to tilt the balance in favor of compulsory licensing, simply on grounds of perceived national advantage: Chinese consumers will benefit; foreign firms will suffer. At the same time, however, the Chinese government is committed to a national strategy of creating an innovation-oriented country to sustain high economic growth and enhance long-term international competitiveness. This strategy contemplates, and is intended to encourage, a nation of inventors; local inventors, who will want and need the same kinds of strong IP protection and valuable incentives that compulsory licensing may prevent and discourage.

THE ANTITRUST LAWS OF THE UNITED STATES AND EUROPE DIFFER IN THEIR APPROACHES TO COMPULSORY LICENSING NOT BECAUSE THEY SUBSCRIBE TO DIFFERENT SCHOOLS OF ECONOMIC THOUGHT, BUT BECAUSE THE DIFFERENT POLITICAL AND CULTURAL BELIEFS THAT INFORM AND ANIMATE THEM LEAD INEVITABLY TO DIFFERENT ANSWERS.

This paper first compares the U.S. and EU approaches to compulsory licensing of “powerful” IP, and then expands the discussion to include the Chinese context. It has modest aims. It will neither attempt to resolve the larger dispute about compulsory licensing, nor will it choose sides. Rather, it will describe the basis for the dispute, demonstrate that the opposing arguments are irreconcilable, and argue that these irreconcilable differences bear significantly on two fundamental issues in global competition law today: the prospect (and wisdom) of international convergence around a single approach to complicated antitrust questions; and the choices that newer competition law regimes—such as China’s—must face in fashioning substantive rules in areas where international consensus is, and is apt to remain, absent.

This paper argues that the antitrust laws of the United States and Europe differ in their approaches to compulsory licensing not because they subscribe to different schools of economic thought, but because the different political and cultural beliefs that inform and animate them lead inevitably to different answers. These political and cultural beliefs have little to do with economics. Indeed, they are persuasive in this context precisely because economic theory lacks explana-

tory power in this area. The beliefs themselves reflect divergent opinions about the relative importance of the long term in antitrust analysis, about faith in the workings of complex regulatory regimes, and about confidence in the ability of markets to reach socially beneficial outcomes. And because these beliefs are primarily political—grounded, that is, in different historical experiences and cultures—it follows that the legal rules that emanate from them are (a) unlikely ever to converge, and (b) contingent, i.e. appropriate for the systems that embrace them, but not necessarily for anyone (or everyone) else.

## II. Compulsory Licensing and the Long Term

Intellectual property law is intended primarily to promote innovation.<sup>2</sup> IP law allows owners and creators to appropriate rents from their works and inventions by excluding others from copying, making, selling, or using them. The efficient extent and duration of the exclusionary period of any IP right is determined with reference to two tradeoffs. One is static loss against dynamic gain. Static loss can arise from the power to exclude, in those few cases where the invention generates market power, and from the attendant ability of the powerful firm to raise price above competitive level.<sup>3</sup> However, by allowing the patent owner to retain supernormal profits, IP law makes it worthwhile for inventors to commit significant resources to risky projects of research and development. The dynamic gain from those projects that result in successful innovation was characterized by Schumpeter as the source of true economic advance.

The other tradeoff is between static inefficiency and the disclosure of information. In return for the right to exclude others, an inventor must disclose the technology behind its patent. In contrast, if an inventor relies on trade secrets, it can also exclude others from using the technology—as long as it can protect the secret—but it need make no public disclosure of the relevant information. Since the informational gain to society from inventions dependent upon trade secrets is small (or non-existent), the level of inefficiency that is tolerated in markets dominated by the holder of a powerful trade secret should arguably be less than the inefficiency tolerated in markets dominated by patented inventions.

In the field of IP, compulsory licensing is usually intended to remedy an “anti-competitive” refusal to license powerful (market-dominating) IP.<sup>4</sup> From an economic perspective, the main benefit of compulsory licensing is the reduction of *ex post* static inefficiency incurred when the owner of a dominant product protected by intellectual property law appropriates rents by charging monopoly prices. But dissipating those rents through compulsory licensing will also reduce returns from R&D investments, which will *ex ante* discourage innovation and create dynamic losses. Moreover, on the margin compulsory licensing may encourage IP owners to rely more often on trade secrets to protect their IP, which will reduce the disclosure of socially valuable information.

Therefore, whether the compulsory licensing of “dominant” intellectual property constitutes a sound legal approach in general hinges on a comparison of short- versus long-run effects. Long-run effects, however, are notoriously difficult—impossible—to measure. But short-run effects—especially those that have already occurred—are largely amenable to measurement. For this reason, an institutional preference for resolving difficult competition law problems by reference to their short-term or static effects underlies much of competition law analysis in the United States and Europe. Thus, in both jurisdictions, regulators and courts assess the legality of competitor collaborations—contractual arrangements, joint ventures, and mergers—in part by comparing their past, present, or near-term anticompetitive consequences with their immediate or near term benefits. Conduct of dominant firms that might harm competition is usually subject to the same form of analysis.

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In one important area, however, the European approach diverges from that of the United States. In the United States, a dominant firm possessed of powerful intellectual property can refuse to license that property to its rivals, or would-be rivals, even though access to the property is arguably necessary to foster or preserve competition in the short term. If it has previously licensed that property, the dominant firm can refuse to continue licensing it, as long as its refusal arises plausibly from the (presumptively valid) everyday desire to appropriate for itself the full value of its invention or creation, and even if the refusal would impede competition in the short run.

In Europe, the dominant firm operates under a more intrusive rule. Although the applicable law appears similar in certain superficial respects to that of the United States, IP licensing decisions come under much stricter regulatory and judicial scrutiny. Thus, while the dominant firm with powerful IP can normally refuse to license its property to rivals, it is required to license in “exceptional circumstances.” The CFI’s *Microsoft* ruling has significantly expanded the set of so-called “exceptional circumstances” to include relatively unexceptional situations in which smaller rivals demonstrate that they need access to the relevant IP in order to compete “effectively” with the dominant firm in a neighboring or secondary market, in which access to the IP would enable them either to develop a “new” product or to make “technical improvements” to their existing ones.

Even before the recent *Microsoft* opinion, this difference in approach to compulsory licensing was the subject of heated debate both within and between U.S. and EU antitrust circles. The *Microsoft* case has provided additional fuel for the

antagonists. For the most part, however, the argument has concerned itself with practical matters: is the U.S. law sensible? Can refusals to license do more economic harm than good? Are courts and regulators competent to define and administer workable standards for compulsory licensing in general and for remedial orders in particular? While these are certainly important questions, the discussion has thus far overlooked the fundamental factor accounting for the difference between the European and U.S. viewpoints.

In important respects, antitrust law in the United States is animated by a deep-seated faith in the long term. A central tenet of this faith holds that a rule of law encouraging the possession and retention of monopoly power will create strong incentives over the long term for vigorous competition, as each firm strives to become a monopolist, and—therefore—very few succeed. Those few firms that do succeed—lawfully—will in turn encourage others to continue trying, provided of course that the successful receive their just rewards.

Another important article of faith holds that since innovation is the best engine of long-term economic growth, antitrust law should foster and protect incentives to innovate. An important way to achieve this goal is to allow dominant firms with valuable intellectual property to realize the full value of their inventions. Those firms will then continue to invest in invention, their rivals will need to invent to keep up with them, and—in the long term—social investment in invention will remain at usefully high levels, all to the benefit of consumers.

This faith in the long term comes with both a corollary and a cost. The corollary requires a minimum of regulatory intervention in the short term, since unwarranted intervention—in the form of compulsory licensing, for example—would, among other things, discourage future investment in invention and deprive society of the valuable long-term benefits that it would otherwise receive. The cost comes in the short run, since an institutional reluctance to intervene in markets dominated by powerful firms necessarily results in consumers' paying more than they would under a more aggressive enforcement

regime. The United States accepts this cost, regarding it as necessary to encourage investment in innovation.

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In contrast, the European regime does not trust so completely in the workings of the long term. Rather, in its approach to regulating the dominant firm, to merger review, and to the specific issue of compulsory IP licensing, it looks primarily to the short-term needs of consumers. It is therefore less tolerant of dominant firms in general, more apt to challenge their conduct, and more skeptical of appeals to the social value of encouraging firms to strive for dominance and of ensuring long-term incentives to invest in innovation.

### III. The Relevant Case Law, and the Relevant Differences, Briefly Discussed

Two strains of case law are relevant to this discussion. The more general pertains to the liability of the dominant firm for refusing to deal with its smaller rivals. The more particular covers the refusal of the dominant firm to license its powerful IP to smaller rivals. In both the United States and Europe, these areas of law are regarded as related but distinct.

#### A. THE U.S. CASE LAW

In both areas, U.S. law divides itself into two parts: (1) refusals to begin a course of dealing (or licensing); and (2) refusals to continue a course of dealing already begun. With regard to the former, the law provides a simple and readily comprehensible rule. It imposes no duty whatever on the dominant firm either to initiate a course of cooperative conduct with its rivals, or to respond positively to its rivals' requests for cooperation.

With regard to the latter, the law is somewhat more complicated. Prior to the Supreme Court's opinion in the *Trinko* case, the freedom of the dominant firm to discontinue a course of co-operative conduct with its smaller rivals was constrained—significantly in the view of some—by the Court's ruling in *Aspen Ski Co.* That case upheld a finding of liability against a dominant ski resort that had ceased co-operating with its smaller rival in selling all-area, six-day lift tickets, refusing even to sell its own lift tickets at retail to the smaller firm. The court found that: (a) the co-operation had begun when the relevant market was competitive; (b) consumers preferred the market with co-operation to the market without; (c) the defendant's behavior could plausibly be characterized as predatory – “[t]he jury may well have concluded that [the defendant] elected to forego . . . short-run benefits because it was more interested in reducing competition . . . over the long run by harming its smaller competitor;”<sup>5</sup> and (d), and perhaps most importantly, the dominant firm had failed to offer a valid business justification—an efficiency defense—for its conduct. The Court's opinion in *Aspen* was controversial, and had more than its share of critics, but until *Trinko* it played an important if controversial role in antitrust jurisprudence.

*Trinko* limited *Aspen*, condemning it to a fate almost worse than death—irrelevance. It located *Aspen* “at or near the outer boundary” of section 2 liability. It referred to its holding as “a limited exception” to the general right of a dominant firm to refuse to deal with its rivals.<sup>6</sup> And it confined its future applicability to cases whose fact patterns neatly matched *Aspen*'s own. In particular, the Court observed, the defendant in *Aspen* terminated “a voluntary (*and thus presumably profitable*) course of dealing,” refusing to provide its competitor with “a product that it already sold at retail,” facts that now seem—after

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*Trinko*, that is—essential to plausible refusal-to-deal claims, whose future in general has been cast into grave doubt.

The U.S. law regarding a dominant firm's refusal to license powerful IP to rivals is somewhat less clear, but not much. The Supreme Court has not ruled on the relevant issues, but a handful of appeals courts have. From these rulings, several salient points have emerged. First, it seems clear—as it is with refusals to deal in general—that a dominant firm has no obligation to cooperate with rivals in the first instance, and can reject with impunity their requests for access to valuable IP. No reported case in the United States imposes antitrust liability for a unilateral refusal to sell or license a patent. And several expressly decline to do so.

The most notable of these is the Second Circuit's 1981 opinion upholding Xerox' refusal to license its plain-paper copying technology to SCM, which claimed that compulsory licensing would create competition in a market without any. Xerox had steadfastly refused to license its technology to SCM, a refusal vindicated on appeal: To rule otherwise, wrote the Court, “would severely trample upon the incentives provided by our patent laws and thus undermine the entire patent system.”<sup>7</sup>

As to refusals to continue licensing IP to one's rivals, the law is slightly less clear. Among circuit courts that have ruled on the issue, small differences in opinion exist. Thus, in the *Image Technical Services* case, in which Kodak was sued for, among other things, having stopped licensing patented copier parts to rivals in the after-market for service, the Ninth Circuit held that a monopolist's desire to exclude others from its lawfully obtained intellectual property “is a presumptively valid business justification for any immediate harm to consumers.”<sup>8</sup> In the Ninth Circuit's view, plaintiffs could rebut the presumption of validity by showing—through proof of the monopolist's subjective intent—that the claimed desire to exclude was “pretextual,” a cloak for some different and noxious anti-competitive intention.

Three years later, on nearly identical facts, the Federal Circuit adopted a modified version of the Ninth Circuit's test, in a case brought against Xerox by rivals in a parts and service after-market. Though relatively small, the Federal Circuit's modification makes a world of difference. Its test eschews any inquiry whatever into the monopolist's subjective intention in refusing to license its rival. Thus, under this test, unless the monopolist has (a) obtained its IP unlawfully<sup>9</sup> or (b) brought “sham litigation” to enforce its patent, its claimed desire to exclude others from using its intellectual property provides an unassailable defense to antitrust claims brought by disappointed rivals.

It is easy to over-emphasize the difference between the Ninth and Federal Circuits' respective approaches to the issue of the monopolist's subjective intent. But focusing too closely on their differences can obscure the large common ground shared by the two opinions. Both make it very difficult for plaintiffs to

prevail. Each recognizes the validity and importance of the monopolist's desire to use the exclusionary power in its valuable IP for its own exclusive benefit. And each creates a strong presumption favoring the use of that power and disfavoring rivals' attempts to interfere with it. For another, firms possessed of powerful IP and well-advised by counsel are not likely to run afoul of Kodak in the future. They can easily create a paper trail of bona fide memoranda announcing the high importance attached to capturing all available benefits from valuable IP.

## B. THE EUROPEAN CASE LAW

Until recently, reasonable people could disagree about whether EU law regarding the ability of the dominant firm to refuse to deal with smaller rivals differed materially from its counterpart in the United States. In general, that is, in cases not involving powerful IP, European courts had adopted a relatively strict version of the so-called essential facilities doctrine. Thus, a dominant firm possessed of powerful property (such as a fleet of trucks which were arguably indispensable for the nationwide home delivery of newspapers) was not required to afford a smaller rival access to that property, since the rival had failed to show—as the law required—that the denial of access “was likely to eliminate *all* competition on the part of the smaller firm.”<sup>10</sup> While not so protective of the dominant firm's interests as U.S. law, the requirements of (i) indispensability and (ii) the likelihood that, without access, all competition in the relevant market would be eliminated nevertheless provided the dominant firm in Europe with a large degree of freedom.

IN GENERAL, THAT IS, IN CASES NOT INVOLVING POWERFUL IP, EUROPEAN COURTS HAD ADOPTED A RELATIVELY STRICT VERSION OF THE SO-CALLED ESSENTIAL FACILITIES DOCTRINE.

As to the compulsory licensing of intellectual property, the pre-*Microsoft* legal regime approached access requests cautiously. After affirming in the *Volvo* case the inventor's exclusive right to refuse to allow others to reproduce its patented property, the ECJ expanded the rights of access-seekers, but gradually and only in “exceptional circumstances.” In *Magill*, holders of what might be termed “weak” copyrights in separate, weekly listings of television programs were made to license their copyrighted material to a firm seeking to publish a new product that would collect all of the listings in one comprehensive guide. Four factors dictated the outcome: (1) the copyright holders were the only sources of the information indispensable to the compilation of a comprehensive guide; (2) their refusal to license “prevented the appearance of a new product;” (3) there was no good business justification for their refusal; and (4) through their refusal they effectively reserved for themselves—eliminated *all* competition in—the market for weekly program guides.

The holding in *Magill* was ratified by the opinion in the *IMS Health* case, another dispute involving the refusal of a dominant firm to license “weak” but

arguably indispensable copyrighted material to a smaller rival. The Court in *IMS* held that the refusal to grant a license to indispensable IP would constitute an abuse of a dominant position under the following circumstances: (a) the access-seeker “intends to offer a new product or service not offered by the copyright owner and for which there is potential consumer demand;” (b) the refusal “is not justified by objective considerations” [valid business justifications]; and (c) the

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refusal reserves the relevant market for the dominant firm “by eliminating *all* competition on that market.”

The *Microsoft* opinion has changed European law dramatically by expanding each of the three criteria set forth in *IMS*. First, *Microsoft* interpreted the “new product” requirement broadly, allowing it to encompass potential improvements to rivals’ existing products already competing in the same market as those offered by the dominant firm. Second, it held that unproven claims about the general tendency of sharing obligations to affect innovation on the margin were not sufficient to constitute an “objective justification” for a refusal to license. Rather, it held that such a justification required the dominant firm to “prove” the extent to which its incentives to invest in innovation would be weakened. And third, it changed the requirement that the refusal eliminate “all” competition in the relevant market, into one that asks whether the refusal eliminates “effective” competition in that market. Collectively, these changes create a large and uncomfortable gap between the now relatively permissive European regime and the relatively restrictive American one.

## IV. Given That EU and U.S. Competition Law Both Aim Primarily to Protect Consumer Welfare, What Accounts for the Difference Between Them?

Since both regimes explicitly identify the protection of “consumer welfare” as the main objective of competition law, the existence of such a significant difference in approach seems fundamental, remarkable, and unsettling. The difference is fundamental because it suggests that there might be, for the very same conduct, different and competing time frames within which to assess consumer welfare. It is remarkable because it implicitly asks—even now, at this relatively late and sophisticated point in antitrust history—on which time frame the analysis should focus. And it is unsettling because the lack of consensus on such a basic matter suggests that there are fixed limits to the ability of economic analysis to solve some of antitrust law’s most pressing problems, and that perhaps one can and indeed must resort to some other, explicitly political calculus to answer these questions.

In this regard, the European approach focuses on the immediate and obvious benefits to consumers that flow from requiring dominant firms to license their valuable IP to smaller rivals. In the short term, smaller rivals can improve upon the relevant technology, and offer consumers a greater choice of products, or at least a greater quantity of roughly similar products at (necessarily) lower prices. Access to the dominant technology could well enable the smaller rivals to remain viably competitive in the short term and protect them from having to cede the market to the dominant player then and for the foreseeable future. Consequently, in the short term, prices will fall, output will rise, choice may expand, and dominance will be checked. Consumers benefit. While the European position would certainly acknowledge the possibility that compulsory licensing might, at the margin, dampen long-term incentives to innovate, it appears agnostic about this possibility, according it (non-dispositive) weight and only then when the dominant firm can “prove” that the licensing in question would weaken its incentives to invent.

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In this area, the United States sees consumer welfare in an entirely different light. It postulates that in the long run consumers benefit enormously from innovation; that ongoing innovation requires a set of incentives and protections that enable inventors to capture the full value of their inventions; and that legal rules that either discourage the incentives or weaken the protections will ultimately serve to diminish investment in invention and thus run counter to consumers’ long term interests. Put another way, the U.S. view rejects the notion that compulsory licensing truly serves consumer welfare. While it would admit—as it must—that compulsory licensing affords consumers with greater choice and lower prices in the short term, it insists that in the long run those benefits are illusory. Eventually, goes the argument, a regime that requires dominant firms to provide rivals with access to valuable IP will sap innovation incentives across the board—incentives not only of the incumbent dominant firm, but also of its smaller rivals and of would-be dominant firms now and in the future. In the long term, these weaker incentives will lead to fewer valuable inventions and a serious net loss of consumer welfare.

Three things about these different approaches should be clear. The first is that each relies on assumptions that economics cannot validate. The second is that their respective costs and benefits are incommensurable, so they cannot be usefully compared. The third follows from the first two; that their foundations are political, historical, and cultural, valid for each country or regime, but not perhaps fully instructive for others.

Economics cannot help determine whether either the EU or the U.S. approach to compulsory IP licensing is sensible. Of course, economics can confidently evaluate improvements to consumer welfare in the short term: Compulsory

licensing should yield greater choice and increased output. This is not problematic. The problem lies instead in attempting to conduct the trade-off between those short-term improvements and the supposed longer-term harms. So, again, economics can confidently predict that compulsory licensing will reduce returns to invention and that therefore—on the margin—there will be less investment in invention in the future, a decrease likely to harm consumers. But how much less investment will there be? And how much less must there be before useful innovation is decreased? Is there a positive correlation between amounts invested in innovation and valuable invention? And what if there is currently overinvestment in innovation? If so, then maybe decreased incentives would, over time, reduce investment to the socially efficient level. The point is that economics is unable to provide answers to these fundamental questions.

But even if the long-term incentive effects of a more frequent compulsory licensing regime could be measured in some manner, other significant problems of measurement and comparison would remain. For example, the short-term benefits of lower prices and greater choice are not readily commensurable with the long-term benefits of higher incentives to invest in invention. Investments do not always yield inventions, for one thing. For another, there are at least four types of relevant investors, each with a slightly different set of incentives: (i) dominant incumbents, (ii) smaller rivals (that would, under U.S. law for example, have incentives to invent around, or over, the incumbent's IP), (iii) existing potential entrants into the relevant and other IP markets; and (iv) future inventors. Comparing all of these uncertain potential long-term losses to the more definite gains obtainable in the near term would almost certainly be an exercise in futility.

These observations cut three ways. First, they mean that the U.S. bias in favor of protecting the dominant firm's incentives to innovate inevitably lacks an empirical foundation, and may (or may not) be misplaced. Second, they mean that the European tendency to compel licensing more frequently does not, because it cannot, weigh off the losses of the likely but unquantifiable disincentives to invest that flow from compulsory licensing. It, too, may be misplaced.

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Consequently, except at the most basic level—that of identifying the very general incentive effects of the relevant legal rules—economic analysis is unhelpful. Third, if economic analysis does not dictate the choice of a legal rule in this area something else must, something non-economic—in other words, something political.

There is not the space here to rehearse the obvious and various historical differences between the United States and Europe that might account for their differing choices about how to treat the compulsory licensing of powerful IP. Nearly from its inception, the United States has enjoyed a national market in goods and serv-

ices relatively free of local interference. The EU is still in the process of developing such a market. The United States has very little history of state-owned firms; the vast majority of its monopolists gained their dominance on the merits. In Europe, by contrast, many of today's monopolists—in transport, electricity, and telephony, for example—were yesterday's state-owned companies.

For a variety of reasons, over the past century markets have worked more effectively in the United States than in Europe. They have been fluid, and Americans in general seem to trust their workings. Over the long term, the United States has been inventive: from a social perspective, investments in innovation seem to have paid big dividends to society. Europe has had very different experiences with markets, with local protectionism, with dominant firms, and with invention. Given these differences, and others, it would be odd indeed if the two legal regimes supplied identical rules to the resolution of problems whose answers are not apodictically ordained by economics.

This conclusion holds several important implications for larger issues central to competition law. But before discussing them, it bears noting that the issue of compulsory licensing is not the only area of competition law where questions are answered by resort to historical and cultural referents. The obligation of the dominant firm to license its valuable IP to smaller rivals is simply one of a much bigger set of questions pertaining to what kinds of behavior constitute an abuse of dominance, or monopolization. This large question can arise in many settings and business contexts, but in every case its resolution necessarily begins with certain basic assumptions about the dominant firm in general.

The U.S. not only accepts dominance, but welcomes it. The Supreme Court has recognized that the possibility of dominance creates incentives—again in the long term—for every business to invest in assets that might enable it to achieve the monopoly rents available to dominant firms. Of course, if most firms compete to become dominant, then very few will actually succeed; and the result will be an economy that promotes consumer welfare. Markets can almost always be trusted to work. But in those relatively rare circumstances when a firm does outstrip its rivals, its success will both identify it as a boon to consumers and serve as a pleasant reminder to others—in the long run—that large rewards can accompany dominance fairly earned. Moreover, if smaller firms cannot match the dominant firm's appeal to consumers, no tears will be shed on their behalf: in the long term, other challengers will enter the market, and the dominant firm, like so many before it, will lose its power to a rival with even more appeal to consumers.

Recently, the United States Supreme Court, without a dissenting voice, referred to the “mere possession of monopoly power” as “an important element of the free-market system,” observing that “the opportunity to charge monopoly prices—at least for a short period—is what attracts ‘business acumen’ in the first place; it induces risk taking that produces innovation and economic growth.”<sup>11</sup> Restated, the Court's view tolerates certain short-run costs associated with the

lawful possession of monopoly power, and imposes a significant burden on those who would complain about monopoly conduct, because it regards those costs (and that burden) as indispensable and unavoidable by-products of an incentive system crucial to the production of “innovation and economic growth.”

The EU is suspicious of dominance, rues its arrival, and encourages its demise. It defines dominance more broadly, and limits its exercise more strictly, than does the United States. Opinions of important appellate courts do not contain—as *Trinko* did—judicial praise for the beneficial economic role played by the dominant firm. There is less confidence that competition can undo dominance, and more fear that dominance will become and remain entrenched for the long term. Thus, as demonstrated by *Microsoft*, there is a preference in Europe for short-term “fixes” to the “problem” of dominance, for regulation now rather than competition later, and for the preservation (and even the support) of smaller, less efficient rivals, in the hope that they can somehow check the power of the dominant firm and protect consumers from future abuse.

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We have drawn these differences broadly, but they are no less real for that. Significantly, like the narrower dispute about the proper approach to IP licensing, these different beliefs about the nature of the dominant firm and its relationship to the competitive process reflect views that arise largely from divergent experience with markets and dominant firms, and from the differing biases that those experiences have generated. And importantly, these differences exist and endure because in large measure economics offers no testable hypothesis about whether in the long run dominance should be encouraged or constrained.

We have drawn these differences broadly, but they are no less real for that. Significantly, like the narrower dispute about the proper approach to IP licensing, these different beliefs about the nature of the dominant firm and its relationship to the competitive process reflect views that arise largely from divergent experience with markets and dominant firms, and from the differing biases that those experiences have generated. And importantly, these differences exist and endure because in large measure economics offers no testable hypothesis about whether in the long run dominance should be encouraged or constrained.

## V. What Are the Broader Implications of These Differences?

First, the differences in approach are important. Among other things, they have significant practical implications for the enforcement of competition law, not just in Europe and the United States, but also in the world at large. In product markets that are truly international, the most aggressive competition law regime can effectively create rules of world-wide application. Now that European law has made it relatively easier for smaller firms to compel dominant rivals to afford them access to valuable IP, it will be difficult if not impossible for jurisdictions with different views on this issue, and the companies doing business in them, to avoid the impact of the European rule. For practical reasons, dominant firms will not often adopt a range of country-by-country licensing practices, and European law will thus become the *de facto* rule in many jurisdictions that might otherwise prefer their own, distinct approach to this issue. To that extent, European law

may create a significant negative externality, serving the short-run interests of Europeans, but in the process imposing significant costs upon other countries' perceived interests.

Second, the differences in approach are irreconcilable. Antitrust analysis in the United States exalts the social and economic importance of the need to maintain, and even to expand, long-term incentives to innovate. They play a role that is at once powerful and unquestioned. Though it may be both distant and unknowable, the long term is very much alive in U.S. antitrust law. In Europe, the long term occupies a subordinate status. There seems to be no regulatory or judicial presumption that current legal rules will meaningfully affect incentives for long-term innovation. And indeed, the efficacy of such incentives is—in court—a matter that must be established by proof, rather than through an *a priori* presumption.

Moreover, the differences are irreconcilable because the values that explain them are incommensurate. The European regime places a high value on the short-term benefits that consumers will likely realize from a legal rule that would sometimes afford smaller firms access to the powerful IP of their dominant rivals. The U.S. approach regards those benefits as detriments in sheep's clothing, seeing them as deeply corrosive of more highly valued long-term incentives to innovate. How can one reasonably compare the value of the short-term benefits favored by Europe to the value of the longer-term benefits preferred by the United States? Any attempt at such a comparison would require something akin to “judging whether a particular line is longer than a particular rock is heavy.”<sup>12</sup> Nor can one assess—except by resort to a distinctly political calculus—whether the short-term benefits are somehow more important or desirable than those in the longer term. Measurement and comparison are simply not helpful. Without a useful metric, or a workable set of shared values, the different approaches cannot be reconciled.

Third, the fact that the differences are political—non-economic—and irreconcilable suggests that the two regimes are highly unlikely to converge in the future on a means of resolving them. The differences are apt to be durable. And while the United States and EU, and other members of the world's antitrust enforcement community, have in recent years quite usefully adopted convergent approaches to the prosecution of international criminal cartels and the procedures for reviewing multi-jurisdictional mergers, there seem to be distinct limits to the possibility of future convergence around a resolution of the issues discussed in this paper.

THIRD, THE FACT THAT THE DIFFERENCES ARE POLITICAL—NON-ECONOMIC—AND IRRECONCILABLE SUGGESTS THAT THE TWO REGIMES ARE HIGHLY UNLIKELY TO CONVERGE IN THE FUTURE ON A MEANS OF RESOLVING THEM.

Finally, this analysis contains an important lesson for the world's new and emerging competition law regimes. The fact that the two most developed systems disagree markedly in their approaches to the issues discussed here, and that they disagree for reasons of policy, history, and culture, suggests that certain aspects of competition law—not by any means all or even most, but some—are contingent, and properly variable. Those aspects of the law do not admit of one “right” response, or perhaps of any “right” response. Rather, they admit of several responses, each contestable, all debatable, and none paramount or universally conclusive.

This is not to say that each nation, or each antitrust regime, ought to go its own way in fashioning rules for the compulsory licensing of dominant intellectual property. It may be that current institutional mechanisms preclude a uniform approach to this issue. But in a world in which countries fully respected one another's economic histories and values, one country might well take into account another's history and values when applying its legal rules to that other country's firms. Those U.S. firms with dominant IP, for example, rose to dominance in a climate that encouraged them to invest and promised them—through the applicable legal rules—that they alone would reap the benefits of those investments.

Without that climate and those rules, it seems fair to say, some of the valuable IP produced by U.S. firms would not have found its way to market. Consequently, it might be appropriate, respectful, and properly sensitive for antitrust regimes outside the United States to recognize that imposing compulsory licensing obligations upon such firms serves not only to reject the U.S. rule of law, and to defeat the initial expectations of the inventing firms, but also to disregard the culture and history from which those firms arose. And, of course, this kind of recognition and respect must run in both—or all—directions. U.S. and European courts and regulators should acknowledge and respect Chinese economic history as well, and bring to their tasks an informed understanding of the remarkable changes that the Chinese economy has undergone in the past three decades.

Moreover, it should be noted that in both the United States and the EU, the issue of compulsory licensing applies only in circumstances where the relevant intellectual property has enabled a firm to become or remain “dominant” in a properly defined antitrust market. Neither regime even contemplates the possibility that compulsory licensing might be imposed on a non-dominant firm. Thus, while the two regimes differ significantly regarding their approach to compelling dominant firms to share their valuable IP, they agree that non-dominant firms are to be free of any such compulsion.

## VI. Legal Framework for Compulsory Licensing of IP in China

In this section we briefly describe China's legal framework regulating the intersection of IP laws and competition laws, particularly with respect to compulsory licensing. Since the relevant substantive rules are scattered in a variety of laws, which is a unique feature of China's legal rules governing both IP and competition, it is helpful to clarify the relationship between these bodies of law. Civil law, contract law, IP law, and competition law provide the main statutory rules for compulsory licensing of IP in China.

An intellectual property right, defined legally as the ownership of intellectual property, is a civil right under Chinese law. According to Article 71 of China's Civil Law, the owner of IP has the authority to lawfully possess, utilize, benefit from, and dispose of his IP in accordance with laws. This means that the refusal to license IP is a legal right of the owner. There may be three legal ramifications of refusals to license IP. One is that refusals to license are legal as long as they are justified by valid reasons. The second is that they may constitute an abuse of IP law alone and are unrelated to competition concerns. In this case compulsory licensing may be explored but not for the purpose of addressing abuses of market power. The third is that refusal to license may be an abuse of market power and compulsory licensing may be used to prohibit or remedy such an abuse in IP-related markets.

Thus the fundamental legal principle for compulsory licensing in China is that refusal to license IP is a right of the owner guaranteed and protected by civil law and IP law. However, this right is not absolute and receives protection only if the owner does not abuse it. If the owner of IP abuses the right to refuse to license, with the purpose or effect of eliminating or restricting competition, antitrust liability may arise and compulsory licensing may be ordered.

THUS THE FUNDAMENTAL LEGAL PRINCIPLE FOR COMPULSORY LICENSING IN CHINA IS THAT REFUSAL TO LICENSE IP IS A RIGHT OF THE OWNER GUARANTEED AND PROTECTED BY CIVIL LAW AND IP LAW.

### A. CHINA'S LAWS ON THE INTERSECTION OF IP AND COMPETITION

#### 1. IP Laws

To facilitate the development of a market-oriented economy, China has created a systematic legal framework to protect IP.<sup>13</sup> But the legal rules guiding compulsory licensing of IP have emerged only gradually. The main body of laws covering compulsory licensing includes the Patent Law, the Rules for the Implementation of the Patent Law, Regulations on the Protection of Layout-Designs of Integrated Circuits, and Measures for the Implementation of the Patent Compulsory Licensing.<sup>14</sup>

China enacted its first Patent Law in 1984.<sup>15</sup> At that time, China had not yet fully achieved the institutional capacities and economic conditions necessary for installing a sound legal system for the protection of IP. Understandably, as a result, compulsory licensing of IP was not approached in a sophisticated fashion. Largely influenced by the country's eagerness to join the Paris Convention on the Protection of Industrial Property ("Paris Convention"), the compulsory licensing rules in the Patent Law, which were largely borrowed from the Paris Convention, provided that compulsory licensing should be imposed only if a patent owner had not fulfilled its obligation to use or practice the patent within a specified period of time (the carrying-out rule) or a technically more advanced patent depended for its practice on an existing patent (the dependence rule). The law did not deal with whether compulsory licensing should be imposed to prohibit or remedy anticompetitive conduct.

The 1984 Patent Law and the ensuing Measure for Implementation, released in 1985, failed to address several key issues. Besides, the Chinese government pledged then to fulfill its commitment to the Memorandum of Understanding between the People's Republic of China and the United States of America on Protection of Intellectual Property Rights. The Patent Law was revised in 1992, in light of the Agreement on Trade-Related Aspects of Intellectual Property Rights ("TRIPs") reached at the Uruguay Round of negotiations. The rules respecting compulsory licensing left the dependence rule unchanged—compulsory licensing may still be imposed under this circumstance. The carrying out rule was replaced by a procedure governing refusals to license. In particular, if any entity "qualified" to exploit the invention in question has requested a license from the patentee of that invention on "reasonable terms," and has been unable to obtain such a license within a reasonable period of time, the Patent Office may, upon application of that entity, grant it a compulsory license to exploit the patent. Again, the 1992 Patent Law did not mention explicitly whether compulsory licensing was predicated on the patentee's "dominance," or "abuse" of dominance, and made no mention of competition concerns.

In order to join the World Trade Organization, China revised its Patent Law again in 2000 in order to make it accord more closely with TRIPs. While refusals to license and "dependent" patents still constituted the main circumstances where compulsory licensing might be imposed, significant changes were made to the relevant substantive rules. The precondition for compulsory licensing of technical advancements was amended to require "significant and breakthrough" technical advancements. More importantly for our purpose, Article 72 (4) of the Measure for Implementation issued in 2001 raised the possibility that compulsory licensing could be explored to remedy a practice determined to be anticompetitive after judicial or administrative process. This was the first appearance in the Patent Law of language permitting compulsory licensing to be used to address competition problems.

The latest revision of the Patent Law was published in 2008, after the enactment of the Anti-Monopoly Law. There are now six circumstances in which compulsory licensing may be explored. In particular, Article 48 of the new Patent Law stipulates that compulsory licensing of IP shall be imposed to remedy certain kinds of anticompetitive conduct.<sup>16</sup>

IN PARTICULAR, ARTICLE 48  
OF THE NEW PATENT LAW  
STIPULATES THAT COMPULSORY  
LICENSING OF IP SHALL  
BE IMPOSED TO REMEDY  
CERTAIN KINDS OF  
ANTICOMPETITIVE CONDUCT.

Compulsory licensing to address competition concerns is also mentioned in the Regulations on the Protection of Layout-Designs of Integrated Circuits issued in 2001, which stipulate that compulsory licensing may be imposed upon the holder of rights in layout-design, in order to address unfair competition concerns.<sup>17</sup> Because the AML had not been enacted when these regulations were issued, this area of competition law was regulated by the Anti-Unfair Competition Law, which listed 11 types of “unfair” competition behaviors, five of which were declared to be “anti-competitive” conduct.

## 2. Contract Laws

Another body of law that contains rules against misuse of market power conferred by IP is contract law. In particular, Article 329 of the Contract Law enacted in 1999 states that any contracts that illegally monopolize technologies, hinder technical progress, or infringe upon technological products of others are invalid. Because this rule is very broad, the Supreme People’s Court issued a judicial interpretation on December 16, 2004,<sup>18</sup> which listed six restrictive terms involved in IP contracts, including quantity restriction, limitation of territory for use of technology, price-fixing, restriction of distribution channels, unreasonable grant-back, non-competition clause, tie-in, and no challenge clause. Neither Contract Law nor the Judicial Interpretation of the Supreme Court explicitly mentioned whether compulsory licensing could be used to remedy anticompetitive conduct in the field of IP.

The Regulation on Import and Export of Technologies issued by the State Council in 2001, and the two versions of the Foreign Trade Law issued in 1994 and 2004, also contain rules against IP restraints on competition. In particular, Article 30 of the Regulation on Import and Export of Technologies provides that if the owner of IP prohibits a licensee from challenging the validity of the IPRs in the licensing contract, forces the licensee to accept a bundle of licenses, requires exclusive grant-back clauses, or distorts fair competition in foreign trade, the Administration of Foreign Trade under the State Council has the authority to adopt measures to address the harm. But again, the laws make no mention of compulsory licensing.

### 3. Competition Laws

Before the AML was enacted, statutory rules against anticompetitive conduct were scattered among several sets of laws and regulations. These included the Anti-Unfair Competition Law, the Price Law, and the Tendering and Bidding Law, which were enacted by the People's Congress, China's national legislative assembly, as well as Regulations on Telecommunications and Regulations on Electricity, which were issued by the State Council. The larger body of competition law in China also encompassed a variety of regulations issued at the ministerial level, and laws and regulations issued by local governments. In general, unlike the laws and regulations promulgated by the People's Congress and the State Council, these local laws and regulations impose rules against monopolistic conduct under specific circumstances in particular jurisdictions. However,

AMONG OTHER THINGS,  
THE AML EXPLICITLY  
PROMULGATES THE LEGAL  
PRINCIPLES GUIDING ANTITRUST  
ENFORCEMENT RELATED TO IP.

none of them address the competition problems that might arise with respect to IP, let alone those pertaining to compulsory licensing.

In 2007, China enacted the Anti-Monopoly Law, the first comprehensive competition law in China's history. Among other things, the AML explicitly promulgates the legal principles guiding antitrust enforcement related to IP. Article 55 of the AML stipulates that while the law shall not interfere with the conduct of business operators to exercise their IP rights under relevant laws and administrative regulations, it prohibits business operators from eliminating or restricting market competition by abusing their IP rights.

The first part of Article 55 means that the law shall not apply to the exercise of IP rights as long as the relevant conduct does not constitute an abuse of the power conferred by those rights. The second part implies that misuse of IP rights is not exempt from coverage by the AML. Thus, the anticompetitive misuse of IP rights may result in liability, if the antitrust enforcement agencies can establish that the owner of the IP has otherwise violated the law. According to Article 3 of the AML, anticompetitive conduct includes "monopolistic agreements" among business operators, abuse of dominant market positions by business operators, and concentration of business operators that eliminates or restricts competition or might eliminate or restrict competition. Though it is not yet clear, these acts may constitute the kind of "abuse" prohibited by Article 55.

Until recently, neither the AML nor the other competition laws had directly addressed refusals to license IPRs. Article 17 of the AML prescribes some general circumstances under which antitrust liability may flow from the refusal to license IP that possesses market power. Article 17 (1) of the AML may impose liability if the licensing fee for the relevant IP is "too high," and thus unfair. Since charging high prices for licensing is closely related to refusals to license, this Article may

be interpreted to require compulsory licensing when the owner of “dominant” IP rights seeks to charge the monopoly price to would-be licensees.

Under Article 17 (3), unilateral refusals to license IP without justifiable reasons may result in liability, which means that under the injunction requirement of Article 15,<sup>19</sup> compulsory licensing may be used to remedy an “anti-competitive” refusal to license. Under Article 17 (5), which sets forth the rule against tie-ins, certain kinds of conditional licensing may be subject to antitrust liability. Finally, Article 17 (6) proscribes unjustified discrimination. However, it is important to emphasize that the AML has adopted the general principle that rule of reason analysis governs the establishment of liability under these rules, which suggests that refusals to license may be justified by “valid” reasons.

HOWEVER, IT IS IMPORTANT TO EMPHASIZE THAT THE AML HAS ADOPTED THE GENERAL PRINCIPLE THAT RULE OF REASON ANALYSIS GOVERNS THE ESTABLISHMENT OF LIABILITY UNDER THESE RULES.

## B. JURISDICTIONS FOR ANTITRUST ENFORCEMENT IN IP

Since China has not yet produced a single case or administrative decision dealing directly with compulsory licensing, it is not possible to analyze the relevant enforcement policies or activities. Instead, we shall provide a brief discussion of the enforcement institutions with the authority to deal with IP restraints on competition and with compulsory licensing.

### 1. Administration Enforcement

The State Intellectual Property Office (“SIPO”), an administrative agency under the State Council, is charged with enforcing IP law. In particular, SIPO is responsible for investigating and deciding issues arising out of claims for compulsory licensing, including the appropriate licensing fees and the length of the license. This grant of authority suggests that all issues relating to compulsory licensing, even those arguably pertaining to anticompetitive conduct, may fall within the jurisdiction of SIPO. IP laws require, however, that a case alleging that misuse of IP has restrained competition should be decided according to the relevant competition laws.

Based on the AML and the authorization by the State Council, the power to enforce the AML is shared by the Ministry of Commerce (“MOFCOM”), the National Development and Reform Commission (“NDRC”), and the State Administration for Industry & Commerce (“SAIC”), which are, respectively, in charge of dealing with merger control, price agreements and price abuse of dominant position, and non-price abuse of dominance. Since compulsory licensing would usually be imposed to remedy the abuse of market power, both the NDRC and the SAIC may have authority to deal with questions of compulsory licensing.

It is worth noting that since both the Patent Law and the AML prescribe legal liabilities for anticompetitive conduct, there may be some overlapping jurisdiction between the IP administrative body and the antitrust enforcement agencies regarding the resolution of cases that could result in compulsory licensing.

## 2. Court Enforcement

Since administrative enforcement co-exists with court enforcement, there are two possibilities for private actions in IP and anticompetition cases in China. One is that a private plaintiff may choose to file a civil lawsuit without pursuing an administrative action. The other is that a plaintiff might lodge an administrative lawsuit after the relevant agency has made a decision with which the plaintiff disagrees.<sup>20</sup>

Private actions for IP cases are tried before the Third Civil Division of the Supreme People's Court, the 31 Higher People's Court (which is one level in importance below the Supreme Court and one level above the Intermediate Court) at the provincial or municipality level, and the intermediate courts situated in the capital cities of the provinces, autonomous regions, and municipalities. The second trial is taken as the final appeal.<sup>21</sup> Because of the need for judicial expertise in IP cases, the Supreme People's Court has specially designated 48 intermediate courts and a small number of basic courts as the courts of first instance.

IN COMPARISON WITH THE ENFORCEMENT OF IP LAWS, WHERE BOTH ADMINISTRATIVE ENFORCEMENT AND PRIVATE ACTIONS REGULARLY OCCUR, THE AML—WHICH HAS ONLY A SHORT HISTORY OF ENFORCEMENT—IS EXPECTED TO BE ENFORCED MAINLY BY ADMINISTRATIVE AGENCIES.

In comparison with the enforcement of IP laws, where both administrative enforcement and private actions regularly occur, the AML—which has only a short history of enforcement—is expected to be enforced mainly by administrative agencies. But there is the possibility that private actions may be brought alleging anticompetitive conduct involving IP. Indeed, Article 50 of the AML establishes civil liability for antitrust violations.<sup>22</sup> More impor-

tantly, the Provision on the Subject Matter of the Civil Case issued by the Supreme People's Court in 2008 stipulates explicitly that anticompetition cases in IP shall be tried by the Third Civil Division. However, it seems that civil lawsuits against anticompetitive conduct are likely to develop very slowly in China. Indeed, as of this writing, the enforcement mechanism for antitrust lawsuits has not been specified, even though the AML has been in effect for almost one year. It is known that the Third Civil Division of the Supreme People's Court shall deal with antitrust cases but many questions remain: where the first trial shall be placed, what the legal procedures for private actions are, and so on.

### 3. The Draft “Anti-Pricing Monopoly Regulation”

On August 12, the NDRC released for public comment a set of regulations whose stated purpose is “preventing and prohibiting pricing monopoly activities, protecting fair competition and safeguarding the interests of consumers and the public.” Though it is not perfectly clear, these regulations are apt to apply to compulsory licensing of IP by the dominant firm. For the reasons discussed below, the text of the regulations is quite worrisome in this regard and others, though their real effect will be determined more by their enforcement than by their wording.

Article 1 of the Regulation, quoted in part above, suffers from one of the same problems that afflicts the AML itself. The three stated goals of the pricing regulation—prohibiting “monopoly pricing,” “protecting fair competition,” and safeguarding consumer interests—can often be at cross purposes. “Monopoly pricing” may, in the short term strike some as “unfair” and will certainly—again in the short term—result in wealth transfers from consumers to monopolists. But it may also be—will often be—the fair and necessary social price for encouraging and rewarding invention. For the same reason, a dominant firm’s refusal to license its powerful IP to smaller rivals—which effectively places an infinite price on the desired license—may seem unfair to rivals and harmful to consumers, again in the short term. But the social benefits likely to be lost by a regime that is quick to compel licensing on grounds of “fairness”—whatever that might mean—are very likely to be significant.

BUT THE SOCIAL BENEFITS LIKELY TO BE LOST BY A REGIME THAT IS QUICK TO COMPEL LICENSING ON GROUNDS OF “FAIRNESS”—WHATEVER THAT MIGHT MEAN—ARE VERY LIKELY TO BE SIGNIFICANT.

The draft Anti-Pricing Regulation (“APR”) applies to two types of conduct: (1) monopoly pricing agreements, and (2) abusive monopoly pricing by the dominant firm. In each case, the regulations are troubling in regard to IP licensing, among other things. Articles 6 and 7 presumptively proscribe joint-pricing decisions by competing firms. In many cases of course, joint pricing ought to be suspect, but in some cases—pricing of a new product by joint venture partners, or of a patent package by the members of a patent pool—there can be good reason, and social benefit, from collective-pricing activity. Article 10 of the APR makes it possible for firms engaging in joint-pricing conduct to offer a “reasonable explanation” for their behavior, but at this point it is unclear what kinds of explanations will be deemed “reasonable.”

Articles 11 and 12, which together forbid abusive monopoly pricing by a firm with “a dominant market position,” are more worrisome still. Three of the five described offenses might bear on IP licensing. Article 11 (1) prevents a dominant firm from selling “products” (it is not clear whether the “licensing” of an IP “right” will constitute the “sale” of a “product,” but for present purposes we assume that it will) at “unfairly high prices.” Article 11 (3) prevents a dominant firm, “without valid justification” (a phrase whose meaning is unclear), from “refusing to deal”

with a counterparty by setting “excessively” high prices. And Article 11 (5) prevents a dominant firm from engaging in any “other pricing conduct” that might—after the fact—be judged “abusive” by the Price Authority.

Article 12 enumerates four factors relevant to the determination whether a dominant firm has in fact sold its products at “an unfairly high price.” The first would ask whether “the selling price is obviously higher than cost;” the second would inquire into whether the selling price has been “increased by a percentage above the normal level, where the cost is basically unchanged;” the third would examine whether the selling price has been increased “by a percentage obviously larger than the increase of the cost;” and the fourth would ask whether “the selling price is obviously higher than that of the same kind of product of other business operators.”

IT DOES NOT REQUIRE MUCH LEGAL TRAINING TO SEE THAT THE TERMINOLOGY USED IN ARTICLE 12 IS DANGEROUSLY VAGUE.

It does not require much legal training to see that the terminology used in Article 12 is dangerously vague. In the case of a dominant firm with powerful IP, the sunk costs of research and

development will invariably outweigh the marginal costs of producing the next unit of product. If marginal costs are the relevant measure for Article 12, then every firm with powerful IP will violate it. But Article 12 is silent as to the appropriate measure of cost. It is also silent, as it must be perhaps, as to the meaning of its “obviousness” test, which lies at the heart of the section: “obvious” to whom? “Obviously” high? Obviously “excessively” high? Obviously “unfairly” high? Who can tell? And in a market dominated by the IP of a powerful firm, what is the “normal” pricing level? Is it the monopoly price normally prevailing in that market, or is it instead a hypothetical price that might prevail if the monopoly market were somehow a competitive one? Or is it something else entirely? And if there are no other firms that sell “the same kind” of product (but what does that mean?), does Article 12 not apply?

The last sentence of Article 12 sets out an escape clause that makes the regulation inapplicable when buyers can obtain “the same kind of product or substitutes from other business operators at a reasonable price.” This clause offers no hope, and more confusion, for firms with powerful IP. It will often be the case that they are dominant precisely because they have invented a product for which there is no good substitute. But if there happens to be a competing product available, how can the dominant firm know whether the regulator will decide—after the fact—that its own sale price was “reasonable,” whatever that means. As a more general matter, the escape clause seems superfluous, a truism, since it effectively says that where competitive pricing exists, abusive pricing does not, a declaration that is not particularly helpful to the business community.

The first paragraph of Article 14 prohibits a dominant firm, “without a valid justification,” from refusing to deal with a counterparty by setting an “excessively” high price, which the second paragraph defines as “a price at which the transaction

counterparty could not achieve normal profit after normal production and sales.” Like the preceding sections of the draft regulation, this section depends for its enforcement on terms with no clear or fixed meaning—“normal” profit “normal production and sales”—and consequently leaves the business community without any guidance as to permissible pricing behaviors. At the same time, it grants the regulator an enforcement discretion both dangerously vague and unlimited.

Article 26 is equally unsettling. It provides that the pricing regulation is “not applicable” to business conduct of firms exercising their IP rights “in accordance” with IP law and relevant regulations. The regulation “is applicable”, however, to conduct of firms that “abuse their intellectual property rights to eliminate or restrict market competition.” No definition of “abuse” is set forth, nor is compulsory licensing discussed or described. But the section seems to suggest that IP can be priced “abusively;” and that doing so will offend the APR.

Finally, while the APR proscribes the kind of conduct discussed above, and permits the relevant agencies to punish offending firms in accordance with Section 51 of the AML, it provides no guidance to administrative agencies about how they might establish a regime of “fair” or “normal” pricing, in order to remedy instances of “abusive” pricing conduct. This omission is understandable in a sense: there is no effective way for any administrative agency to act as an ongoing price-setter or adjuster. Far easier is it—misguided, but easier—to punish unfairly “high” prices than to set prices that are “fair,” or at least “fairly” high. To this extent, the APR violates the antitrust maxim that no competition law regime should proscribe conduct that it cannot effectively remedy; and, if unamended, it will present a host of intractable difficulties to regulatory bodies.

THE APR VIOLATES THE ANTITRUST MAXIM THAT NO COMPETITION LAW REGIME SHOULD PROSCRIBE CONDUCT THAT IT CANNOT EFFECTIVELY REMEDY; AND, IF UNAMENDED, IT WILL PRESENT A HOST OF INTRACTABLE DIFFICULTIES TO REGULATORY BODIES.

If not revised significantly and for the better, the APR will pose a serious roadblock to everyday and socially beneficial conduct. It will impede—and may even seriously punish—proper refusals to license IP. It will require firms to guess at the meaning of words that have no fixed meaning, and to risk liability for being unable to divine their meaning. And it will require the regulator to make critical factual determinations—about pricing levels, “normal” markets—without reference to useful or knowable criteria.

## VII. Inadequancies in China’s Legal Framework for Compulsory Licensing

China introduced legal rules regarding compulsory licensing in 1984 but there has not yet been a case or decision dealing with this issue, which seems unusual

given the growing number of complaints about IP restraints. One possible reason for the lack of a reported decision is that a contestable case has yet to arise. A more likely explanation may be that China's legal framework is inadequate to deal with the complicated issues involved in claims for compulsory licensing, and particularly with those relating to promoting competition and innovation in the field of IP. While the legal framework is evolving and being improved continuously, the current situation suggests that the main challenges for China's legal rules on compulsory licensing lie in addressing inadequacies in some of the applicable legal standards and in resolving the potential for conflict and confusion arising from overlapping agency jurisdiction.

As described in the last section, Chinese IP laws and competition laws both express the fundamental legal principle that the exercise of IP rights is subject to legal control. More specifically, both the Patent Law and the AML make certain

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refusals to license IP remediable by compulsory licensing. But the current IP laws and competition laws still cast some shadow over the enforcement of antitrust rules in the field of IP, in particular regarding the imposition of compulsory licensing, and of the terms on which compulsory licensing might be ordered.

An important problem stems from the lack of comprehensive statutory criteria for assessing the extent to which the use of IP rights might restrain competition.<sup>23</sup> Article 55 of the AML stipulates that any anticompetitive conduct in the use of IP shall be regulated by the AML. Article 17 of the AML specifies six categories of restraints on competition, but these categories are general in nature and not placed into the context of IP use. The interpretation by the Supreme People's Court of the Contract Law prescribes, in the context of IP, six circumstances under which a case may be established on account of illegally monopolizing a technology and impeding technical progress. But the interpretation does not discuss some important circumstances. For instance, there is no discussion of patent pools or cross-licensing, which raise important questions about the relationship between IP and competition law. The Foreign Trade Law also pinpoints in the context of foreign trade some IP restraints but again these references offer little guidance about enforcing the AML in IP-related cases.

One may argue that this lack of specificity does not constitute a serious problem as Article 17 (7) of the AML provides that the law shall apply to unspecified restraints on competition. But the vagueness of such a clause is apt to create uncertainty in the business community and to raise the likelihood of enforcement error: both type I and type II errors are more likely because the "unspecified" circumstances are incapable of accurate prediction, may raise difficult factual or substantive questions, and may not be readily amenable to reasoned analysis. Further, since China follows the statutory law tradition and its enforce-

ment capability is still being developed, the specification of circumstances attracting enforcement of the AML is necessary to enhance enforcement efficiency and effectiveness by describing the *prima facie* case and efficiently allocating the burden of proof.

Second, until recently there have been no explicit legal rules governing compulsory licensing in the software industry. As is well known, many IP rights in the software industry are protected by copyright, and compulsory licensing has been one of the controversial issues in the *Microsoft* cases worldwide. However, neither the Copyright Law nor the Regulation on the Protection of Software, which are the main bodies of law regulating the software industry in China, provides legal rules to deal with competition issues in general and compulsory licensing in particular. For example, it is unclear whether China's competition agencies may require the owner of the interface code of a software system to provide access to its rivals and, if so, under what circumstances and terms. The open access issue can be analyzed under the general guidance of the AML. Indeed, one can analogize a denial of access to a refusal to deal under the essential facility doctrine. But given the specific features of the software industry and the complicated issues involved, it is doubtful that the existing IP laws and competition laws are adequate to deal with such cases.

Third, there are many uncertainties regarding the application of Article 17 of the AML to the field of IP. For instance, Article 17 (1) provides that antitrust liability may be imposed if a seller sets a high price that is unfair. In the context of IP this implies that the licensor cannot set the license fee or royalty at the monopoly price level, even if it has done nothing to restrain competition. This provision is particularly worrisome. Licensees are naturally inclined to complain that license fees are too high; and if their complaints find a receptive audience within the relevant enforcement agency, owners of IP rights will run the risk of being denied adequate compensation for their investments in R&D, which would likely, as discussed earlier, discourage investment in and development of innovations.

As is well known, the central economic feature of innovative activities is that inventors almost always have to incur large amounts of sunk costs, and bear the substantial risk of research or market failure, facts which are often played down by rivals and sometimes by enforcement agencies. Thus, allowing inventors to fully appropriate monopoly rents from successful inventions is necessary to compensate them for their risk-taking and to induce them, and others, to take comparable risks in the future. Indeed, temporary supernormal rents are exactly the incentives necessary for making investments in innovation that dramatically improve consumer welfare, and that spur dynamic competition in invention. Therefore, charging monopoly prices *per se* should not be deemed to violate the AML.

Another problem with Article 17 (1) of the AML is that it may place an IP owner's legal right of exclusion at risk. Article 17 (3) of the AML specifies that

refusals to license IP without reasonable justification are a restraint of competition. However, in many cases refusals to deal may result from the parties' inability to agree on an appropriate fee for the relevant license. Such refusals could also be viewed as equivalent to charging monopoly—or infinitely high—prices. Thus Article 17 (1) and (3), if inappropriately applied, may endanger the exclusionary right of an IP holder, which stands at the center of IP law.

We are not arguing that IP rights are absolute or unqualified, or that all refusals to license are *per se* legal. Rather, we worry about the uncertainties and social harms that may result if these rules are inappropriately applied. Fortunately, the AML has adopted the general principle of rule of reason analysis to assess claims of anticompetitive conduct. This should make it possible to avoid the unfortunate consequences of bad decision-making. But it should also encourage the enforcers of IP laws and competition laws to issue guidelines clarifying these important issues.

Fourth, neither IP law nor competition law specifies a methodology for establishing license fees, in those cases where compulsory licensing is imposed. Article 57 of the Patent Law stipulates that if compulsory licensing is ordered, the licensee should pay “reasonable” usage fees to the licensor, and that those fees shall be negotiated by the licensor and the licensee. If they cannot agree upon a reasonable fee, they can apply to SIPO for an administrative ruling. If they are not satisfied with the ruling, they can file an administrative lawsuit in court. However, no guideline has been released specifying the criteria relevant for either the administrative ruling or the court review. A host of difficult questions exists: what constitutes a reasonable license fee; on what basis should the license fee be determined; should the license fee be cost-based, and if so, on what cost; should

the inventor receive a “fair” return on its initial investment; should payment consist of a lump sum fee, an annual royalty, or a combination of the two—a two-part tariff; and so on.<sup>24</sup>

IN FACT, ORDERING A DOMINANT FIRM TO LICENSE ITS POWERFUL IP TO RIVALS AMOUNTS TO A DECLARATION THAT THE IP IS AN ESSENTIAL FACILITY.

In fact, ordering a dominant firm to license its powerful IP to rivals amounts to a declaration that the IP is an essential facility. Declaring

certain IP to be an “essential facility” requires courts or agencies to determine the “proper” amount of the licensing fee, and other terms and conditions of the license, initially and then repeatedly over time. Compulsory licensing necessarily forces the IP and antitrust enforcement agencies to perform the regulatory function of setting prices, a role to which they are ill-suited. As the practice of interconnection pricing demonstrated vividly worldwide, it is a daunting task for regulators simply to set initial access prices (licensing fees), due to the complex tradeoffs that must be made. On the one hand, they may be tempted to set a low licensing fee in order to promote short-term competition (service competition) and thus to enhance short-run consumer welfare. On the other, they may want to set a high licensing price to promote longer-term investment (facilitate-based

competition) and innovation. The tradeoff is complicated by specific features of certain kinds of IP, particularly where the marginal costs of use or production are almost zero, and marginal cost pricing is unremunerative and therefore inefficient.<sup>25</sup>

Finally, there exist potentially serious problems of overlapping and conflicting jurisdiction. SIPO and the competition policy agencies share the enforcement power over anticompetitive conduct involving IP, in particular in regard to imposing compulsory licensing to remedy IP restraints on competition. Indeed, the Patent Law grants SIPO general jurisdiction over compulsory licensing. At the same time, the AML bestows competition agencies with the power to forbid anticompetitive conduct, including unreasonable refusals to deal. This power enables each enforcement agency to explore compulsory licensing as a remedy for refusals to license IP, an arrangement with the obvious potential for administrative conflict that could lead not only to the squandering of scarce administrative resources but also to incompatible enforcement standards.

FINALLY, THERE EXIST  
POTENTIALLY SERIOUS PROBLEMS  
OF OVERLAPPING AND  
CONFLICTING JURISDICTION.

In addition, there may be overlapping and conflicting jurisdiction among the competition agencies themselves. As described in the last section, the NDRC and SAIC have the power to prohibit monopolistic agreements and abusive conducts in price and non-price fields, respectively. While their respective areas of authority may appear to be separate and distinct, many cases will necessarily involve both price and non-price conduct, creating the potential for jurisdictional conflicts to arise with some regularity. For example, suppose certain competitors agree to create a patent pool. Their agreement provides that each member can use the patents in the pool royalty-free but may not license them to third parties; and that each member may unilaterally license its own (non-pooled) IPRs to third parties but may charge no less than the licensing fee specified in the agreement. Clearly, both refusals to license and price agreements are involved in this case. The NDRC may deal with this case as regards the price agreement, while the SAIC may regulate the non-price conduct. However, it is hard to think of a situation where different enforcement agencies might usefully share jurisdiction over the same case, not least because of the high co-ordination costs involved.

## VIII. Relevant Factors in Determining China's Compulsory Licensing Policy

Thus far, we have discussed the basic economic tradeoffs between short- and long-term efficiencies, U.S. and EU case law, and China's legal framework for compulsory licensing in the field of IP. We now move to the analysis of factors necessary to the formation of a coherent compulsory licensing policy in China's context. Fundamental economic principles suggest that imposing compulsory

licensing in China should take due account, but without exaggeration, of special “developing country” issues, including *inter alia*, the high proportion of IP rights granted to non-residents, and current institutional enforcement capacity.

### A. HIGH PROPORTIONS OF PATENTS GRANTED TO NON-RESIDENTS

As in other developing countries, most patented technologies and copyrighted IP practiced in China are developed abroad, in part because of China's current comparative disadvantage in R&D investment. Even though the overall proportion of patents granted to non-residents was only 14.26 percent in 2007, the inventions patented to foreign firms and individuals were 52.99 percent of the total (in China patents are divided into three categories—inventions, utility models, and design patents; the latter two types have lower technical content than the first type), while at the same time the percentage of utility model and design patents granted to non-residents was 1.1 and 9.34, respectively (Table 1). This suggests that most patents granted to local residents are utility model and design patents with relatively low technical content, while most patents issued

to foreign companies or individuals have relatively high technical content, and therefore more commercial value. From an economic perspective the distribution of patents granted to residents and non-residents will have a profound impact on the basic tradeoffs involved in establishing a policy for compulsory licensing.

As discussed earlier, the purpose of the patent system is to provide incentives for firms to invest in R&D by permitting monopoly rents in return for disclosure to the public of the under-

lying technology. But this may not be the primary function of the patent system in China under current circumstances. Since high-value technologies patented in China have mostly been invented abroad where firms make R&D investment decisions based on projected profits from larger markets—typically the United States, EU or Japan—reducing monopoly rents from sales in China might not cost China much in innovation, as lost sales there would likely be small compared to those made in the other countries. Similarly, the information disclosure function of the patent system would not be much affected. Since technologies are usually patented abroad, firms and individuals in China can obtain the relevant information from the patent documents disclosed in those other countries.

But this does not mean that foreign inventors will decline to seek patent protection in China. Since the information contained in foreign patent applications is available elsewhere and to others, if an inventor does not obtain a patent in China, someone else could do so and exclude the inventor from the market. If no one obtains a patent, rents that might have been available will be dissipated because the technology will be used on a royalty-free basis.

FROM AN ECONOMIC PERSPECTIVE  
THE DISTRIBUTION OF PATENTS  
GRANTED TO RESIDENTS AND  
NON-RESIDENTS WILL HAVE A  
PROFOUND IMPACT ON THE BASIC  
TRADEOFFS INVOLVED IN  
ESTABLISHING A POLICY FOR  
COMPULSORY LICENSING.

Some might suggest that restricting the market power of patents in developing or technology-importing countries could lead to static gains locally—consumers would get something for nothing, or for very little—while the dynamic loss from discouraging innovation or less information disclosure would likely be small. It might seem to follow then that China would benefit from a strategy that provided relatively little protection to IP and that adopted lenient rules that would require more compulsory licensing of powerful IP.

While we can understand this so-called developing country argument, we believe it to be short-sighted and incomplete. First, the profile of the patent grant is changing in China. While until recently, IP rights for most core technologies were owned by foreign companies or individuals, this situation is changing as China becomes more economically developed. Indeed, from 1998 to 2008, more than 50 percent of invention patents were granted to non-residents each year, with the proportion peaking at 72.67 percent in 2002. Since then, however, it has decreased for six consecutive years, falling to 50.28 percent in 2008. Given the trend of China's economic growth and the national strategy to develop an innovation-oriented country, the proportion of patents granted to non-residents is likely to decline further in the future. In fact, while one must be cautious in interpreting the relevant statistics, Table 2 shows that patents granted to residents already constitute a significant part of the total in China: it is still lower than in Japan, France, Germany, and Korea but higher than in the United States and Canada. Under such circumstances the disincentive effect will certainly loom larger in the years to come, a fact that poses a strong challenge to the standard developing country argument.

WHILE WE CAN UNDERSTAND THIS SO-CALLED DEVELOPING COUNTRY ARGUMENT, WE BELIEVE IT TO BE SHORT-SIGHTED AND INCOMPLETE.

Second, a parochial approach to IP rights might diminish the long-run attractiveness of China for FDI. In 2007, for example, China received 74.8 billion dollars of FDI,<sup>26</sup> making it the largest recipient of FDI worldwide. This fact may suggest that China has already installed a pro-innovation legal framework for IP protection that has contributed to China's attractiveness to incoming foreign investments and technology transfers. For those who may question the Chinese government's enforcement intentions with regard to IP rights, this high level of investment may suggest that the strength of IP protection is irrelevant to FDI inflow. In fact, strong IP rights alone are not sufficient incentives for firms to invest in a foreign country. They are only one component of a larger regulatory system, which includes tax laws, investment regulations, production incentives, trade policies, and competition rules. However, since weaker protection of IP and the threat of compulsory licensing tend to lower the expected returns of foreign investments, they could well affect FDI in the long run.

Third, adverse selection effects might cause firms with dominant core technologies either to leave China or to refrain from entering. If a foreign firm with

dominant technology expects that its IP may be declared an essential facility and made subject to compulsory licensing, it might well choose to avoid China's market because it would not expect to realize a fair return on investment. Under this circumstance, foreign capital with high technological content would not flow to China, leaving China with only low technical FDI. This result would defeat the main incentive behind efforts to attract FDI, and harm technical progress in China.

SINCE WEAKER PROTECTION OF IP AND THE THREAT OF COMPULSORY LICENSING TEND TO LOWER THE EXPECTED RETURNS OF FOREIGN INVESTMENTS, THEY COULD WELL AFFECT FDI IN THE LONG RUN.

Finally, independent innovation might be suppressed. The developing country argument builds upon the assumption that patents owned by non-residents are disproportionately numerous and more valuable. However, independent innovation is very important for China as a

means of upgrading industries and enhancing its international competitiveness. One could argue that independent (home-grown) innovation is too demanding in terms of funding requirements and technological support. Since China still has a relatively weak technological sector, it can afford only a relatively low level of R&D investment.<sup>27</sup> Thus, some might argue, China should not engage much in independent innovations. But independent innovations include not only original inventions but also integrated innovations, combination innovations, improvement innovations, and in-draft assimilation innovations. Indeed, until recently China has adopted the low-risk bearing innovation strategy of promoting integrated innovations and in-draft assimilation innovations based upon innovations embodied in FDI. In light of this, since FDI would be discouraged by weak IP protection and unwarranted compulsory licensing, independent innovation would be suppressed.

## B. ENFORCEMENT CAPABILITY

Even if economic conditions might warrant compulsory licensing due to IP restraints on competition, in China the already complex economic tradeoffs are complicated further by enforcement issues. In fact, weak enforcement capacity may counsel in favor of a policy of less compulsory licensing.

First, the legal rules regulating compulsory licensing are inadequate. As discussed earlier, the criteria in the current statutory rules in regard to compulsory licensing as a remedy for anticompetitive conduct are incomplete. Since China follows the statutory law tradition, clear and comprehensive rules are essential to guide and facilitate the enforcement agencies in establishing a *prima facie* case and to place the burden of proof efficiently. Furthermore, confusion and inconsistencies plague China's current competition laws on compulsory licensing. The Chinese government needs to publish regulations and guidelines to address these issues.

Second, the jurisprudence and capability of economic analysis are still being developed. While we have argued that economics has limits in dealing with the

long-term effects of compulsory licensing of IP, we do not mean to suggest that economic analysis has no place in such cases. Among other things, our argument suggests that sound decision-making in the area of compulsory licensing is difficult and complex, and necessarily forces competition agencies to exercise regulatory functions. In fact, as decisions governing compulsory licensing are based on the rule of reason, economic analysis is indispensable to the decision-making process. However, in China economic analysis has come to anticompetition cases only recently; and, as experience in the United States and EU demonstrates, it takes a long time and significant resources in order for competition regulators to develop institutional economic expertise.

Finally, there are problems in the allocation of enforcement responsibilities. One obvious problem is that too many government agencies have jurisdiction over competition policy in IP, particularly as to compulsory licensing. As discussed before, there are potential overlapping and conflicting jurisdictions between the IP administration and competition agencies, and between the competition agencies themselves. Indeed, the existence of overlapping and conflicting jurisdiction, coupled with a lack of clarity as to the particular responsibilities of the relevant administrative agencies, is often an institutional problem in China that hinders the efficiency and effectiveness of law enforcement.

Another governance problem is the absence of institutions that might ensure independence of decision-making on issues pertaining to the compulsory licensing of IP. As we have argued, compulsory licensing of IP is a complex and subtle issue not only because there are complicated economic tradeoffs to make but also because other, non-economic factors might influence the decision-making process. Under such circumstances good governance is especially necessary to ensure commitment to independent decision making.

ONE OBVIOUS PROBLEM IS THAT TOO MANY GOVERNMENT AGENCIES HAVE JURISDICTION OVER COMPETITION POLICY IN IP, PARTICULARLY AS TO COMPULSORY LICENSING.

## IX. Conclusions and Recommendations

The question of whether and on what terms to require dominant firms to license their powerful IP to rivals lies at the center of the intersection between antitrust and IP law. Not only is it extremely important, but it is also beyond the competence of economics to answer. It is one of those few but crucial problems that seem intractable to economic analysis, and that therefore require antitrust regulators and problem-solvers to draw on local history and politics and culture, in order to formulate answers. If this prospect is unsettling, because it is indeterminate and relative, it is nevertheless unavoidable (which may also be unsettling), since no better method for solving these problems exists.

Most of the problems arising in competition law can best be solved using accepted methods of economic analysis. For most countries, in the large majority of cases, and for the vast majority of businesses, a competition law regime driven mainly by political principles and concerns would be confusing and inconstant, and would thus deter more competition than it protected. Newer competition law regimes should be encouraged to use all of the economic tools available to the more experienced regulators. But as to some issues—again, those discussed here, in which economics lacks explanatory power—developed competition law regimes seem to lack an objective basis for arguing that the history and politics of their own countries or regions should serve as the universal or international standard. As to those issues, newer regimes should presumably be largely free to develop their own answers on their own terms, but with reference to and regard for the approaches of more experienced and developed systems.

FOR THOSE PROBLEMS,  
POLITICS AND HISTORY—MESSY,  
INDIVIDUATED, IDIOSYNCRATIC,  
AND UN-SCIENTIFIC—ARE THE  
ANSWERS OF LAST RESORT.

There are limits to economics, even in a field as heavily and beneficially influenced by that discipline as competition law. Even after three decades of growing influence, during which economics has reshaped and refined competition law in the United States and Europe, some of the law's most important problems—compulsory licensing among them—remain resistant to economic analysis. For those problems, politics and history—messy, individuated, idiosyncratic, and un-scientific—are the answers of last resort. But they have limits as well: no one answer fits all countries; different legal systems cannot completely converge; the respective values of older systems and newer ones might conflict; and many inventing companies have invested large sums in research in reliance on the legal protections afforded them by their national competition law regimes.

In China's context, since compulsory licensing of IP is so complicated and subtle an issue, it may be too soon to recommend any specific approach. Certainly, more discussion and research are needed. However, certain preliminary steps should be taken. First, the Chinese authorities regulating issues involving IP and competition law should issue specific regulations and guidelines to clarify the meaning and likely application of the legal rules guiding law enforcement. Second, the administration of law enforcement should be improved to facilitate the co-ordination of enforcement agencies, avoid conflicts between them, and ensure their independent decision-making on compulsory licensing. Finally, efforts to build capacity in law enforcement should be stressed. ▼

**Table 1**

**Patents Granted  
to Non-Residents  
in China (%)**

	Total	Invention	Utility Model	Design Patent
1985	19.57	5.00	6.67	55.26
1986	11.67	7.14	2.06	67.81
1987	6.02	26.30	1.58	33.49
1988	5.47	39.80	0.76	23.12
1989	9.63	52.97	1.00	22.31
1990	14.54	70.06	1.23	21.52
1991	13.97	68.20	0.73	15.79
1992	10.05	65.05	0.46	13.74
1993	8.44	59.82	0.51	12.17
1994	8.13	57.28	0.63	16.50
1995	8.47	54.91	0.91	14.97
1996	7.87	53.14	0.59	12.48
1997	9.03	56.15	0.57	12.34
1998	9.59	65.03	0.55	11.10
1999	8.04	59.45	0.49	8.97
2000	9.60	51.30	0.61	8.62
2001	13.11	66.89	0.63	8.56
2002	15.33	72.67	0.68	8.04
2003	17.91	69.31	0.89	8.24
2004	20.45	63.04	0.86	10.23
2005	19.81	61.16	1.53	10.54
2006	16.47	56.60	1.25	9.84
2007	14.26	52.99	1.10	9.34
2008	14.46	50.28	0.85	7.74

World Patent Report: a Statistical Review 2008, WIPO Statistics Database.

**Table 2**

Patents Granted  
to Non-Residents  
by Office in  
2007 (%)

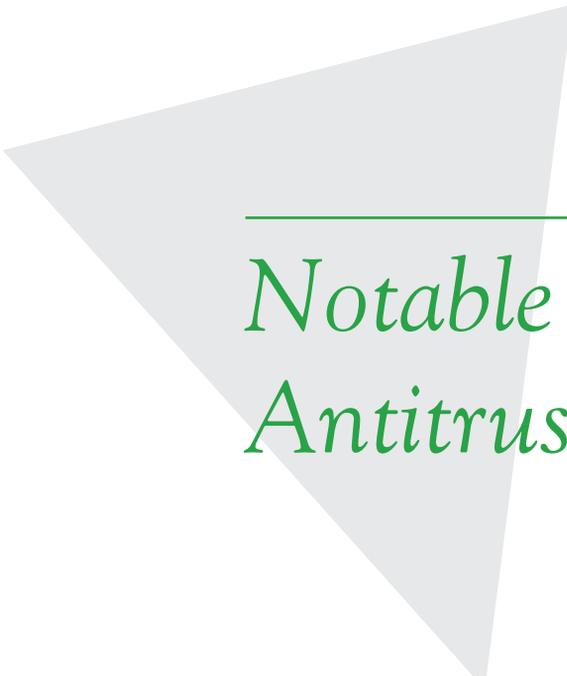
Japan	15.85
France	13.95
Germany	21.54
Republic of Korea	25.38
Russian Federation	30.26
United Kingdom	30.50
China	37.57
United States of America	47.09
New Zealand	75.88
Norway	81.62
Thailand	36.82
Canada	87.55
Australia	90.06
Singapore	93.01
Mexico	96.21
Hong Kong (SAR), China	98.84

Source: World Patent Report: a Statistical Review 2008, WIPO Statistics Database.

- 1 XIANTAO HUANG, PATENT: STRATEGY, MANAGEMENT AND LITIGATION, at 3 (2008).
- 2 We do not attempt to have an exhaustive survey of the literature on economics of compulsory licensing. Please see DOJ and FTC, *Antitrust Enforcement and Intellectual Property Rights: Promoting Innovation and Competition, 2007* and the references therein.
- 3 If rent-seeking is considered, the social loss approaches to the producer surplus. If the transaction cost of rent-seeking is taken into account, the social cost is even higher. There are other short-run inefficiencies as well, which are analyzed in a large literature on economics of open access to essential facilities. For a good summary, see JEAN-JACQUES LAFFONT & JEAN TIROLE, *COMPETITION IN TELECOMMUNICATIONS* (2000). In the intellectual property context, an obligation to open access to the property is equivalent to a requirement for compulsory licensing. Because of this access requirement, compulsory licensing also may reduce efficiency in the short run by facilitating the entry of inefficient producers and by promoting licensing arrangements that result in higher prices.
- 4 Compulsory licensing is not the only remedy of abuse of IPRs. Changing the breadth of IPRs can make inventing around easier.
- 5 *Aspen Skiing Co. v Aspen Highlands Skiing Corp*, 472 U.S. 585 at 608.

- 6 Verizon Communications Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. at 409.
- 7 SCM Corp. v. Xerox Corp, 645 F.2d 1195, at 1209.
- 8 Image Technical Services v. Eastman Kodak, 125 F.3d at 1218.
- 9 That is, by committing fraud on the patent office, see Walker Process, 382 U.S. 172.
- 10 C-97/7 Oscar Bronner v Mediaprint (1998) ECR I-7791, (emphasis supplied).
- 11 Trinko, *supra* note 6.
- 12 Scalia, J., concurring in Bendix Autolite v. Midwesco Enterprises, 486 U.S. 888, 897 (1988).
- 13 After 30 years of efforts, China has created a legal system that is in accordance with international practice. The Trademark Law, the Patent Law, the Copyright Law, Regulations on Computers Software Protection, Regulations of the People's Republic of China on Customs Protection of Intellectual Property Rights, Regulations of the People's Republic of China on Protection of New Varieties of Plants, The Regulations on the Protection of Right of Dissemination via Information Network, Regulations on Collective Copyright Management, Regulations on the Protection of Layout-Designs of Integrated Circuits, Regulations on Protection of World Exposition Symbols, Regulations on Protection of Olympic Symbols, Regulations on Protection of Traditional Arts and Crafts constitute the main body of China's IP laws. In addition, General Principles of the Civil Law also contains rules on IP protection.
- 14 Article 22 of the Copyright Law enacted in 2001 did provide rules on compulsory licensing but they were unrelated to competition concerns. Regulations for the Protection of Computer Software published in 2001 did not contain explicit rules on compulsory licensing.
- 15 For more detailed account of the evolvement of compulsory licensing of IPRs in China please refer to LIN, XIUQIN, PATENT COMPULSORY LICENSING UNDER THE TRIPS AGREEMENT (2006).
- 16 The Patent Law of the People's Republic of China. (...the Patent Administration Department under the State Council may... grant a compulsory license for the exploitation of an invention patent or utility model patent: (1)... ; or (2) The patentee's act of exercising the patent right is determined as monopoly in accordance with the law and the negative impact of such an act on competition needs to be eliminated or reduced.)
- 17 Regulations on the Protection of Layout-Designs of Integrated Circuits (...that there is unfair competition on the part of the holder of the right of layout-design and there is a need to give remedy, the intellectual property administration department of the State Council may grant a non-voluntary license to exploit the layout-design.)
- 18 Interpretation of the Supreme People's Court Concerning Some Issues on the Applications of Laws for the Trial of Case on Disputes Over Technology Contracts.
- 19 Article 47 of AML stipulates that where any business operator abuses its dominant market status in violation of this Law, it shall be ordered to cease doing so.
- 20 Article 58 of the 2008 Patent Law stipulates that if the holder of IP rights is not satisfied with the compulsory licensing decision made by the SIPO, it can start an administrative lawsuit against it. Similarly, Article 53 of the AML provides that where any party concerned objects to the decision made by the antimonopoly authority in accordance with this Law, it may first apply for an administrative reconsideration; if it objects to the reconsideration decision, it may lodge an administrative lawsuit in accordance with law.

- 21 Before 1990s, there was no special trial court for IP cases. Rather, the cases were divided as civil, criminal, and administrative cases and reviewed by the civil division, the economic division, and the administrative division, respectively. In 1993 the Beijing Intermediate People's Court created the first division dealing with civil and administrative IP cases. In 1996 the Shanghai Supreme People's Court established the IP trial division dealing specifically the cases of second instance and a trial *de novo*. In 2000 the Supreme People's Court restructured the IP Division to the Third Civil Division, which is called the IP Division by outsiders.
- 22 See Article 50 of the AML (where any loss was caused by a business operator's monopolistic conducts to other entities and individuals, the business operator shall assume the civil liabilities.)
- 23 XIAOYE WANG, COMPETITION LAWS IN COMPULSORY LICENSING OF IP (2007) (Arguing for provision of complete criteria of circumstances of IP restraints in China's laws.)
- 24 Michael L. Katz & Carl Shapiro, *On the Licensing of Innovations*, 16(4) RAND at 504-520 (1985); Morton I. Kamien, Shmuel S. Oren, & Yair Tauman, *Optimal Licensing of Cost-reducing Innovation*, J. MATH. ENG. 21, at 483-508 (1992).
- 25 Reiko Aoki & John Small, *Compulsory licensing of Technology and the Essential Facility Doctrine*, 16(1) ECONOMICS WORKING PAPER SERIES (2004) (Arguing that charging royalty, which is at odds with the marginal cost pricing principle, may be more efficient.)
- 26 *China Statistic Yearbook 2008*, National Statistic Bureau, China Statistic Press.
- 27 For example, China's R&D investments in 2006 are 50.1 billion dollars, which are 0.96 percent of GDP. In contrast, the U.S., Japan, and Korean's R&D investments are 285, 131.7, and 22.4 billions dollars and 2.52 percent, 3.28 percent, and 2.17 percent of GDP, respectively.



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*Notable  
Antitrust Cases*

# China—The *Baidu* Decision

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*Dr. R. Ian McEwin & Dr. Corinne Chew\**

The *Baidu* case, one of the first abuse of dominance cases in China, is important in several respects. First, it was one of the first private competition law actions in China. Second, the judgment was read out in a real-time broadcast. Third, the legal reasoning was more detailed than in other competition law cases. Fourth, the Court stressed the importance of economic reasoning and evidence in deciding such cases. This paper analyzes both the facts of the case and its significance.

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## I. Introduction

In November 2008, Tangshan Renren Information Service Co Ltd (“Tangshan Renren”) complained to the Chinese State Administration of Industry and Commerce (“SAIC”) alleging that Beijing Baidu Netcom Science and Technology Co Ltd (“Baidu”) had abused its dominant position, contravening the Chinese Anti-Monopoly Law that had come into force on August 1, 2008. As a result of the lack of a public response from the SAIC, Tangshan Renren commenced a private action in April 2009 against Baidu, the largest internet search engine provider in China.

On December 18, 2009, the Chief Justice of the Beijing First Intermediate Court publicly announced the Court’s decision on Tangshan Renren’s claim, one of the first cases of abuse of dominance in China under the Chinese Anti-Monopoly Law. Tangshan Renren’s case against Baidu centered on allegations that Baidu, an internet search engine, had abused its dominant position in the search engine market. According to Tangshan Renren, Baidu reduced the visibility of Tangshan Renren’s website to Baidu users to induce Tangshan Renren to inject more advertising fees into the search engine’s advertisement platform.

FIRST, IT WAS ONE OF THE FIRST  
PRIVATE COMPETITION  
LAW ACTIONS IN CHINA.

The case is important in several respects. First, it was one of the first private competition law actions in China. Second, the judgment was read out in a real-time broadcast. Third, the legal reasoning was more detailed than in other competition law cases. Fourth, the Court stressed the importance of economic reasoning and evidence in deciding such cases.

## II. Some Background on Search Engines

Search engines help users find information. For example, Google stores (“caches”) web pages on its own computers (“servers”) and indexes the information. Information is updated by sending automated “spiders” or “crawlers” onto the Web. When a user enters a search term, Google searches its own cached content with its own index, not the Web itself.<sup>1</sup> Advertising is provided on Google’s own websites. Advertising pays search engines. As Moffat points out:

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“Advertisers were estimated to spend eleven billion dollars on advertising with search engines in 2008, reflecting the sheer economic power of the industry. Indeed, an entirely new industry, search engine optimization (“SEO”), has arisen to assist website owners in improving their rankings in search engine results, a fact that emphasizes search engines’ role as a gate-keeper and driver of the online economy.”<sup>2</sup>

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Search engine users do not pay to conduct searches on search engines; rather, advertisers pay to have their advertisement appear either generally or with specific search terms.

### III. Facts of the Case

Tangshan Renren operates a medical information website. Baidu operates an internet search engine that provides free search services to its users. Like most other search engines, the considerable investment in technology and infrastructure is funded through supplying paid advertising platforms to advertisers and website owners.

Search companies such as Baidu use auction-based advertising programs that allow advertisers to target advertisements to specific search keywords. At the start of the “dot.com revolution,” advertisers paid for online advertisements on a “cost-per-impression” basis, i.e. advertisers paid for the number of times a page containing the advertising was displayed. However, with the evolution of the online advertising market, web publishers and search engines developed new revenue earning methods. As Ratliff and Rubinfeld describe:

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“[The online advertisement market] changed in 1998, when the search engine GoTo.com was launched. GoTo.com broke with CPM [“Cost Per Mille”] pricing, instead auctioning the top results of its search-result pages, with advertisers’ sites appearing in descending order of their bids (on a pay-per-click basis). GoTo used a real-time competitive bidding process to allocate listing priorities.”<sup>3</sup>

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Increasingly, now, advertisers are charged “per click” on an advertisement rather than on the number of users that see the webpage with the advertisement.

Baidu uses two systems to rank and display search results. The first ranks on the basis of key-word matches, the second on the basis of a “bid” ranking system where the ranking is dependent on the amount of advertising fees paid for the Pay for Placement (“P4P”) program. Under the P4P advertising, paid advertisements appear alongside internet search results. Advertisers bid for the right to place an advertisement and those who pay more have their advertisements displayed more prominently on the webpage. Internet users of Baidu and other search engines want a “neutral” search engine in the sense that the search engine selects web pages to display objectively on the basis of keyword matches and successful bids. However, search engines can be manipulated to give priority to other objectives.

For example, in a complaint to the European Commission in early 2010, it was alleged that Google used its search engine to give priority in search results to its own services such as its own price comparison and video services.<sup>4</sup>

Tangshan Renren initially paid fees to Baidu to increase its page ranking by participating in the P4P system. Tangshan Renren alleged that from May 2008, after it reduced its “bid” payments to Baidu, as a retaliatory measure for the drop in payments from Tangshan Renren and in order to induce Tangshan Renren to reinstate its fee payments, Baidu abused its dominant position by using a penalty filter to lower its website rankings.

Penalty filters are tools used by search engines to stop “spamdexing” (i.e. deliberately modifying web pages to increase the chance of them being higher in search engine results or influencing the categories to which a web page is assigned) or to prevent against sites attempting to manipulate the search engine’s algorithms.

## IV. The Claim

Tangshan Renren alleged that Baidu had infringed Article 17(iv) of the Anti-Monopoly Law by taking measures to reduce Tangshan Renren’s ranking in its search results to coerce Tangshan Renren’s continued participation in the P4P program.

Article 17 of the Anti-Monopoly Law states as follows:

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“Undertakings with dominant market positions are prohibited from committing any of the following acts that abuses dominant market positions:

- (i) selling products at unfairly high prices or buying products at unfairly low prices;
  - (ii) without valid reasons, selling products at prices below cost;
  - (iii) without valid reasons, refusing to trade with trading partners;
  - (iv) without valid reasons, restricting trading partners to only trade with the undertaking or undertakings designated by the undertaking;
  - (v) without valid reasons, tying products or imposing other unreasonable trading conditions during the deals;
  - (vi) without valid reasons, applying differentiated treatment in regards to transaction conditions such as trading prices to equivalent trading partners; or
  - (vii) other abuses of dominant market position determined by the Anti-Monopoly Law Enforcement Authority under the State Council.”
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Article 17(iv) prohibits a dominant firm from engaging in exclusive dealing. It is difficult to see why the allegations were based on Article 17(iv) rather than 17(vi) which deals with discrimination. This will be discussed later.

## V. Market Definition in Baidu

In order to assess whether Baidu is dominant and the anticompetitive effects (if any) of Baidu's conduct, the relevant market must first be defined.

Tangshan Renren had claimed, in its action, that the relevant market was the "Search Engine Service Market in China."

Baidu argued that "as the search engine service is free for internet users, which is not subject to Anti-Monopoly Law, there is no relevant market under the Anti-Monopoly Law." The Court rejected this because free internet services are closely combined with paid services. According to the Court,

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"[t]he free search service provided by search engine providers to internet users is not equivalent to a free service for charity, and may obtain actual or potential commercial benefits by attracting internet users and employing advertisement or other marketing services."

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In determining the relevant market in the case, the Court looked to Article 12.2 of the Anti-Monopoly Law which provides as follows:

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"'Relevant market' in this Law refers to the scope of products and areas within which the undertakings compete against each other during a certain period of time with respect to relevant commodities or services."

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The Court further relied on the economic test in Section 3 of the "Guidelines for the Definition of Relevant Market" issued by the Anti-Monopoly Commission of the State Council in May, 2009. These Guidelines refer to relevant product and geographic markets in terms of "close substitutability" where a "relevant product market" consists of categories of products that may be substituted for one another based on product characteristics, use, and price; and a "geographic market" consists of the area(s) in which substitute products may be

obtained. This test is not dissimilar to the Hypothetical Monopolist or “SSNIP” (Small but Significant and Non-transitory Increase in Price) tests used by other competition law / antitrust jurisdictions.

Administering the test, the Court agreed with Tangshan Renren that the relevant product market was the search engine market in China. The geographic market was limited to China due to cultural and language differences. According to the Court, “search engine service means an internet information inquiry service in which the service provider accepts the search request of internet users, operates an internet application software system, searches, caches, processes and organises relevant webpages, and provides the search result to the internet users.” However, the Court held that internet search engine services are not “closely related to internet news services, real-time communication services and other internet services to form a relevant market.”

ADMINISTERING THE TEST,  
THE COURT AGREED WITH  
TANGSHAN RENREN THAT THE  
RELEVANT PRODUCT MARKET  
WAS THE SEARCH ENGINE  
MARKET IN CHINA.

## VI. Search Engines and Market Definition

Internet Search engines operate in two-sided markets. That is, an economic network that has two distinct user groups (advertisers who pay and users who do not) who provide each other with indirect network benefits. In two-sided markets, users on each side of the platform typically require very different kinds of functions from the platform. Search engine users want to be able to conduct efficient relevant searches. Advertisers want an avenue or medium in which they can effectively broadcast their advertisements to a wider and targeted audience.

Market definition is more complicated where two-sided markets are involved because both sides of the market must be taken into consideration when delineating the scope of the market. As Evans elucidates:

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“The fact that one or more subjects of the inquiry are two-sided platforms does not fundamentally alter market definition analysis. However, the interdependence between the two sides of a platform and the products and businesses relevant to both sides must be considered.”<sup>5</sup>

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On the one side the market should be looked at according to the search engine services, on the other the focal service is that of advertising.

Search engines such as Baidu, Google, and Yahoo are widely used by internet users to browse for web pages relevant to their searches. The popularity of search engines used depends largely on the search functions provided, ease of use, accuracy, range of results, and, most importantly, the language and geography.

In relation to advertising, search engines and online advertising media are likely to compete with offline media such as advertisement space in newsprint and advertising slots in television broadcast, as well as other forms of online media attached directly to web pages.

MARKET DEFINITION SHOULD BE UNDERTAKEN IN RELATION TO THE CONDUCT COMPLAINED ABOUT.

As such, it is not clear why Tangshan Renren argued that this case defined a search engine market. Market definition should be undertaken in relation to the conduct complained about. Tangshan Renren bought advertising space on Baidu's P4P program, but subsequently reduced the fees paid. Tangshan Renren complained that Baidu, as a result of its reduction in fees paid, had blocked the display of Tangshan Renren's webpage in the keyword search results. The commercial relationship between Tangshan Renren and Baidu was the purchase and supply of advertising space. It would have been more appropriate to have argued some kind of internet advertising market.

## VII. Is Baidu Dominant?

Article 19 of the Anti-Monopoly Law contains a rebuttable presumption that firms with greater than 50 percent market share are dominant. Tangshan Renren provided two articles in support of its proposition that Baidu had a market share of greater than 50 percent.

The first, an article published in the Company News column at [www.baidu.com](http://www.baidu.com) on October 23, 2008, entitled *Baidu Q3 User Number Approaching 200,000, Pay Search Growing Steadily*, stated that "as indicated by third party statistics, the turnover of search engine advertisement market in China reached RMB2.73 billion in 2007, and will grow by 80% in 2008 as compared with 2007..."

The second, a *China Securities Journal* article dated 17 September 2008, stated that according to analysts,

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"as the largest Chinese search engine in the world, Baidu had secured more than 70% share of the search engine market, and was the single brand company with the highest usage in all websites in China. Advertisements on the

Baidu platform may extend to all internet users in China, which was also the reason for the steady and rapid growth of its pay search business.”

The Court clarified that the factors considered by the Court in assessing dominance included market share, competitive structure of the market, the ability of Baidu to control sales in the market or the supply of raw materials, Baidu’s financial and technological strength, barriers to entry, etc. However, the Court held that “it is impossible to determine whether the definition of the relevant market as the basis of the ‘market share’ mentioned in the two articles is the same as the definition of the relevant market in this case.”

The articles use such terms as “paid inclusion search” and “search engine advertisement market” which would have been appropriate if the relevant market was defined in advertising terms. It seems, from the limited evidence tendered that the plaintiff’s lawyers may have lacked experience in defining relevant markets for competition law purposes. For example, from the judgment, it appears that the presence or lack of alternative search engine advertisement platforms or other online advertising media in Chinese (i.e. substitutable products / services) or the use and popularity of the same, were not discussed at all. This is not surprising given the newness of the Anti-Monopoly Law.

THE ARTICLES USE SUCH TERMS AS “PAID INCLUSION SEARCH” AND “SEARCH ENGINE ADVERTISEMENT MARKET” WHICH WOULD HAVE BEEN APPROPRIATE IF THE RELEVANT MARKET WAS DEFINED IN ADVERTISING TERMS.

## VIII. If Baidu Were Dominant, Did It Abuse That Dominance?

The Court, despite its finding that Baidu was not dominant, discussed the abuse issue as well. Tangshan Renren alleged that Baidu had, by reducing the number of hits on its website, infringed Article 17(iv) of the Anti-Monopoly Law by “without valid reasons, restricting trading partners to only trade with the undertaking or undertakings designated by the undertaking.”

Baidu admitted that it used technical measures such as “reducing caches” or reducing the number of hits on Tangshan Renren’s website as a defense against spamdexing. This fact was not disputed. However, Baidu defended its actions as counteractions or defenses against spamdexing on Tangshan Renren’s websites. According to Baidu, when the Baidu search engine displays search results according to the key words entered by internet users, the list of standard search hits will appear on the left side of the webpage, and the list of paid inclusion hits will appear on the right side of the webpage, provided that on the first page of search

results, some paid inclusion hits may appear in the list on the left side of the webpage with the standard search hits. This means that fees paid for the P4P program would have little or no effect on the page rankings for standard search hits.

HOWEVER, BAIDU DEFENDED ITS ACTIONS AS COUNTERACTIONS OR DEFENSES AGAINST SPAMDEXING ON TANGSHAN RENREN'S WEBSITES.

Further, in the column *Webpage Search Help-Manager Frequently Asked Questions* (“FAQs”) at Baidu’s website [www.baidu.com](http://www.baidu.com), the terms and conditions of Baidu’s page ranking display read as follows:

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“What kind of webpages will be determined by Baidu as valueless, not cached by Baidu and removed from the current search results? Baidu only caches webpages having value to users, and the existence, removal and change of any links to the webpage in the search result is the result of the algorithm calculation and adjustment. The following types of webpages are expressly not welcome in Baidu: Webpages manipulating the results displayed by search engines, creating content appearing in the search result which is different from the actual content of the webpage, or enabling the webpage to obtain an improper placement in the ranking of the search results, to deceive the user.”

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According to Baidu, the creation of spam links falls within such category of “unwelcome” web pages. Indeed, the Court found that Tangshan Renren’s webpage contained many spam links and so Baidu’s actions to reduce hits on it were justified. The Court found, also, that Tangshan Renren failed to prove that the reduced hits on its webpage were due to Tangshan Renren’s reduced payments to Baidu.

## IX. Exclusive Dealing vs Discrimination

As stated above, it is peculiar that Tangshan Renren had chosen to rely on Article 17(iv) of the Anti-Monopoly Law. Article 17(iv) of the Anti-Monopoly Law deals with exclusive dealing where a party is “coerced” into dealing with the dominant undertaking or an undertaking designated by a dominant undertaking. Tangshan Renren had alleged that by reducing its page ranking Baidu had sought to “coerce” Tangshan Renren into participating in the P4P program.

However, from the judgment, Tangshan Renren failed to demonstrate that, apart from Baidu, it did not have any other avenue in which it could advertise its website and a reduction in its page rankings on Baidu would have adversely

affected Tangshan Renren's business such that it would leave Tangshan Renren with little option but to invest in the P4P program. Indeed, to the contrary, Tangshan Renren demonstrated to the Court that a Google search generated 6690 hits referring to its website, indicating that the Google search engine was a possible alternate avenue for Tangshan Renren to reach out to internet users.

It is, moreover, unclear why Tangshan Renren failed to argue that Baidu had breached Article 17(vi) of the Anti-Monopoly Law, which prohibits discriminatory conduct on the part of dominant undertakings. Although the sustainability of such an argument is hypothetical, a *mala fide* retaliatory (and hence, discriminatory) reduction in Tangshan Renren's page ranking in the standard search function as a result of its reduced participation in the P4P program may well be an easier argument to prove where there are no commercial justifications for a reduction in the page ranking.

IT IS, MOREOVER, UNCLEAR WHY TANGSHAN RENREN FAILED TO ARGUE THAT BAIDU HAD BREACHED ARTICLE 17(VI) OF THE ANTI-MONOPOLY LAW, WHICH PROHIBITS DISCRIMINATORY CONDUCT ON THE PART OF DOMINANT UNDERTAKINGS.

## X. Conclusions

Market definition was not extensively discussed in the judgment as the Court agreed with the plaintiff. It is difficult to understand why an advertising market was not argued. If so, then one of the articles submitted on market share may have been relevant to showing dominance in some kind of online advertising market.

Most commentators have welcomed the greater transparency from the global broadcast of the decision on the Chinese media and the internet and the Court's willingness to use economic analysis in its decision. This is certainly to be lauded. However, during the decision, arguments and discussion of the relevant market and indeed what constitutes abuse of a dominant position in this situation in the Court proceedings, were limited. Overall, the proceedings were conducted in a very short period of time. There does not seem to have been much evidence introduced nor were experts brought by the parties to assist the Court in understanding the economic issues, given the novelty of the Anti-Monopoly Law. This is a pity in such a highly technologically advanced and fast-moving industry.

Finally, the wisdom of having private rights of action in such a new and complex area of law can be questioned, given the expertise needed to advocate and adjudicate on such matters, without guidance from a competition regulator. Other countries such as Singapore initially did not permit private actions to determine breaches of its competition law on the grounds that inexperienced judges could lead to decisions and create precedents that might inhibit future

competition. The European Union, Vietnam, and South Africa have similarly relied more on specialized Commissions than the courts to administer and enforce competition law.

Although there is no “one-size-fits all” model, given China’s size and given that enforcement of laws in China is generally handled through decentralized administrative decisions, private actions may well give rise to inconsistent enforcement across the country. However, competition law cases may be increasingly referred to specialized courts. In December 2008, a special “monopoly division” was set up inside the Shanghai No. 2 Intermediate People’s Court. Elsewhere, cases brought under the Anti-Monopoly Law are dealt with by two different Divisions. Civil claims are dealt with by the intellectual property law division while administrative claims are dealt with by the administrative law division. The Shanghai Court initiative, “a pilot program blessed by the Supreme People’s Court with an aim to promote judicial expertise in this area,”<sup>6</sup> is an important step. This development is to be welcomed and will encourage legal practitioners in China to foray into the arena of competition law and gain legal expertise in complex areas such as the economics of digital media and market definition for two-sided markets; and, indeed, for economic consultants to do likewise. The challenge for the courts will be in surmounting the limited access to economic expertise in newly developing, high-technology markets where the costs of making wrong decisions can be considerable. ▼

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- 1 For an explanation of how Google works see: [http://www.googleguide.com/google\\_works.html](http://www.googleguide.com/google_works.html).
  - 2 Viva R. Moffat, *Regulating Search*, 22(2) HARV. J.L. & TECH. 475-513 at 481-2 (Spring 2009).
  - 3 James D. Ratliff & Daniel L. Rubinfeld, *Online Advertising: Defining Relevant Markets*, 6(3) J. COMPETITION L. & ECON. 653-686, (Sept. 2009).
  - 4 Times Online, *EU launches antitrust inquiry into Google ‘dominance’* (February 24, 2010), available at [http://business.timesonline.co.uk/tol/business/industry\\_sectors/technology/article7038845.ece](http://business.timesonline.co.uk/tol/business/industry_sectors/technology/article7038845.ece).
  - 5 David S. Evans, *Two-Sided Market Definition*, ABA Section of Antitrust Law, MARKET DEFINITION IN ANTITRUST: THEORY AND CASE STUDIES, (forthcoming), available at <http://ssrn.com/abstract=1396751>.
  - 6 Oliver Zhong, *Dawn of a New Constitutional Era or Opportunity Wasted? An Intellectual Reappraisal of China’s Anti-Monopoly Law*, (April, 2010), available at: <http://ssrn.com/abstract=1596814>.



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*The Classics*

# Introduction to Stigler's Theory of Oligopoly

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*Dennis W. Carlton and Sam Peltzman\**

This article introduces the reprint of George Stigler's *A Theory of Oligopoly*, first published in 1964. Stigler's article was a landmark in the theory of industrial organization and in the practice of antitrust. For industrial organization economists it focused attention on the sorry state of oligopoly theory and, using information theory, proposed a theory that could explain the deviations of oligopoly pricing from competitive pricing. For antitrust practitioners the article came to have an important impact on the application of antitrust law, especially in the merger area. Indeed, it is not an overstatement to say that Stigler's theory of oligopoly remains a central pillar in merger policy in most, if not all, antitrust regimes around the world.

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## I. Introduction

Stigler's *A Theory of Oligopoly*<sup>1</sup> was a landmark in the theory of industrial organization and in the practice of antitrust. For industrial organization economists it focused attention on the sorry state of oligopoly theory and, using information theory, proposed a theory that could explain the deviations of oligopoly pricing from competitive pricing. For antitrust practitioners the article came to have an important impact on the application of antitrust law, especially in the merger area. Indeed, it is not an overstatement to say that Stigler's theory of oligopoly remains a central pillar in merger policy in most, if not all, antitrust regimes around the world.

Because Stigler was succinct in his article, we first discuss in Section II what exactly his article does. We turn next to a discussion of why this article is a landmark in industrial organization and explain how it influenced research in the field. We also note a waning of this influence as the literature on merger and antitrust seems to have swung back a bit toward the type of models Stigler complained about. Finally, we trace the importance of Stigler's paper on antitrust scholars and its influence on antitrust policy today.

INDEED, IT IS NOT AN UNDERSTATEMENT TO SAY THAT STIGLER'S THEORY OF OLIGOPOLY REMAINS A CENTRAL PILLAR IN MERGER POLICY IN MOST, IF NOT ALL, ANTITRUST REGIMES AROUND THE WORLD.

## II. A Guide to Stigler's Theory of Oligopoly

Imagine that you and 5 friends are passing some time gambling with an ordinary 6-sided die. Each of you is assigned a number from 1 to 6. Then each antes \$1, the die is cast, and the pot goes to the one whose number comes up. This isn't a very exciting game, because, so long as the die is fair, all of you will approximately break even if you play long enough. On average, you will win the \$6 pot once in 6 tosses (let's call 6 tosses "a round") and lose your ante the other 5 times. Exciting or not, you find the game a nice way to socialize with friends. So, you're happy to play so long as the die is fair.

But is the die fair? Even if it is, you will lose money in around 3 of every 10 rounds just by the luck of the draw. You break even because you make up for those lost rounds by a comparable proportion of rounds where you win more than once. You only win exactly once in less than half the rounds. And all of these properties of the game are averages. You shouldn't jump to conclusions about the fairness of the die if you drew blanks 4 times out the last 10 rounds, or if your number didn't turn up more than once or twice in those 10 rounds. You do like the company, and you do not want to alienate your host by accusing him of cheating if your losses in those 10 rounds are just random bad luck.

But what if you lose 20 of 50 rounds, instead of the 15 you might expect by chance? Or 40 of 100? Or 400 of 1000? At some point you would conclude that the die is unfair, and you may exit the game.

BUT THE ESSENCE OF THE THEORY LIES IN THE SAME PROBLEM—HOW TO DISTINGUISH GENUINE CHEATING FROM RANDOM BAD LUCK BY SIFTING THE NOISY AVAILABLE INFORMATION.

This simple example is at the heart of George Stigler's 1964 theory of oligopoly. His statistics are more embellished than this example, but the essence of the theory lies in the same problem—how to distinguish genuine cheating from random bad luck by sifting the noisy available information. To see where Stigler is going, change the friendly game we have just described

to a collusive agreement among 6 sellers. We have all agreed to set the monopoly price and divvy up the monopoly profits equally. As long as the agreement holds, the buyers would have no particular reason to favor one seller over the other. So, the buyers would pick sellers randomly, perhaps by tossing dice. For concreteness, say there are 60 buyers who shop for 1 unit per week (a week is a "round" in this version of the game) using their die to pick which seller will get their order. Each of us can then expect to average around 10 sales per week. But the monopoly price-cost wedge also gives each of my fellow colluders an incentive to cheat. A buyer may be attracted to a cheater by the lower price, and the cheating seller's profits will increase in the short run as long as that price is still above marginal cost.

How can I tell if one or more of my rivals gave into this temptation to cheat? The cheaters are not going to announce themselves. I may have to infer cheating by determining that my sales are abnormally weak. This isn't so easy. I expect to average 10 sales per week if we are all adhering to the agreement. But that means that half the weeks I'll get fewer than 10, and in this example the normal variability engendered by the dice being cast by buyers means that in about half of those weeks I won't even get 8 customers. I could easily have a bad run of several weeks of below average sales without any hanky panky going on. And I do not want to jump to conclusions prematurely. If I do so, not only will I lose friends but I also may touch off a costly price war. So I will have to wait and see if my sales averaged over many weeks are less than I should expect from mere bad luck. How long will this take? That depends on the normal variability of my weekly sales: the bigger it is, the longer I will have to wait to sift the truth from the noise.

We should pause here to note some aspects of Stigler's theory:

#### **A. IT IS A THEORY OF EQUILIBRIUM IN A DYNAMIC NON-COOPERATIVE GAME**

Most of the article is taken up with the problem of how rivals can detect cheating from an agreement. However, Stigler's ultimate interest is in whether a price

significantly above the competitive level—perhaps even one as high as the static monopoly level—can be sustained. This is made crystal clear in the second sentence: “The present paper accepts the hypothesis that oligopolists wish to collude to maximize joint profits.”<sup>2</sup> Just how they act on this wish is never made clear. The important issue for Stigler is that once a price is somehow agreed upon, there will be incentives for individual rivals to cheat on the agreement. Whether cheating occurs depends on weighing the profits from not cheating against the profits from cheating and then being detected and having competition break out. The main part of the paper, “The Methods of Collusion,” is really about the circumstances that make an agreement less susceptible to cheating, not the nitty gritty of where and how the agreement got made nor on exactly what happens when the cheating is discovered. Still, it is fair to say that Stigler has in mind a self-enforcing equilibrium where price is sustained above competitive levels over time—what game theorists today would call a dynamic non-cooperative equilibrium.

STIGLER’S MAIN POINT—AND ONE RELATED TO THE POINT BERTRAND HAD MADE MUCH EARLIER—IS THAT A RIVAL MAY STEAL CONSIDERABLE SALES BEFORE BEING DETECTED.

Until Stigler’s article, much oligopoly theory had been of the “non-cooperative” variety in a static game: What happens if there are a few sellers who each act in their own best interests, taking into account some assumed reaction from their rivals? Stigler does not follow this path, because he did not believe that static non-cooperative rivalry could capture some key features of oligopoly behavior such as the detection of deviations from non-competitive pricing. Stigler’s main point—and one related to the point Bertrand had made much earlier—is that a rival may steal considerable sales before being detected. That lag in detection creates an incentive to undercut any above-competitive price. However, the money being left on the table if price is at the competitive level, Stigler reasoned, would tempt the sellers or a subset of them to abandon the non-cooperation for a grab at the brass ring of joint-profit maximization. But any agreement among sellers cannot ignore the incentives to cheat provided by lags in detection. So understanding when a price elevated above the competitive level can be an equilibrium requires an analysis of the dynamic consequences of cheating versus not cheating. What Stigler calls “stable collusion” would today be described as a self-enforcing equilibrium in a dynamic non-cooperative game.

## B. IT IS A THEORY WRITTEN IN THE SHADOW OF ANTITRUST

Explicit or formal cooperation is, of course, illegal. Stigler recognizes this, but he does not take refuge in mealy-mouthed talk of informal collusion, which he thought was an overrated cop out. His stance here is that of the pioneer he also was in the economics of crime and punishment. Illegal collusion is a fact of business life, but its nature and frequency is shaped by antitrust enforcement. Thus he rules out of consideration or downplays some obvious solutions to the prob-

lem at the heart of his theory—the sifting of cheating from bad luck. For example, our six sellers could merge. That would directly get rid of the randomness in sales that creates the oligopolists' information problem. But “often merger will be inappropriate” in part because “it may be forbidden by law.”<sup>3</sup> Similar short shrift is given to such devices as cartel agreements or joint sales agencies.<sup>4</sup> Stigler's stance here is that the theory should recognize legal constraints within some kind of cost-benefit calculus. Rule out mergers and the like because they are so easy to detect and so obviously sanctionable. Do not rule out the proverbial smoke-filled room, but do be skeptical of agreements that need frequent renegotiation. Frequent meetings or, in general, frequent communications among sellers raise the probability of getting caught. Therefore the emphasis is on sellers having to rely mainly on their own sales records rather than any shared information to enforce infrequently negotiated agreements.

### C. THE THEORY IS ABOUT EQUILIBRIUM, NOT HOW YOU GET THERE

In the language of game theory, Stigler's theory is looking for a “dominant strategy.” In his formulation there are two alternatives: joint profit maximization or something like Bertrand competition. Stigler does not discuss alternatives, such as an equilibrium in which a high price is set for a while, then occasional cheating leads to price competition and, finally, a collusive price is reestablished, though the ingredients to construct such a result are clearly there.

INSTEAD, THE QUESTION IS  
FRAMED IN TERMS OF  
WHETHER OR NOT JOINT  
PROFIT-MAXIMIZING-COLLUSION  
YIELDS A MEANINGFUL  
AND DURABLE DEPARTURE  
FROM COMPETITION.

Instead, the question is framed in terms of whether or not joint profit-maximizing-collusion yields a meaningful and durable departure from competition. To find the answer we have to play a mental game of first imagining that there is an agreement to set a price above the competitive level and then asking if the conditions are right for the agreement to be or not to be undermined by the incentive to cheat.

If the agreement will be undermined substantially and quickly it will not be entered into in the first place. An agreement is costly, legally and in other ways, and needs substantial rewards to justify contemplating it. So the logical structure of Stigler's theory is similar to that of the famous “prisoner's dilemma” of game theory. Either collusion is a dominant strategy (everyone adheres to the agreement) or it is not. If it is not, there is no agreement (or, equivalently, everyone violates it before the ink dries or the smoke clears) and the equilibrium, as Stigler sees it, is trivially different from textbook competition. The theory is about figuring out the circumstances in which collusion is more or less likely to be the dominant strategy. And those circumstances depend crucially on the quality of information available to the players (sellers).<sup>5</sup>

Play out the mental game sketched above under circumstances where a cheater can expect substantial short-run profits and/or can expect to keep them for a

long time, because it is difficult for the honest firms to quickly filter the cheating from random bad luck. In such a world, competition is the dominant strategy. In this kind of a world, everyone wants to be the first cheater, so collusion cannot work. But where cheating can be detected and perhaps punished (in ways Stigler doesn't specify) very quickly, it will not occur in the first place. The hypothetical and potential first cheater would, in effect, compare the present values of two alternative cash flows. If he doesn't cheat, then no one will; remember, you always want to be the first cheater. So the no-cheating wealth will be the present value of the steady stream of this firm's share of industry profits resulting from a price set above the competitive level. If he does cheat, he gets a cash flow that starts out higher than this, but now, with rapid detection and response, the cash flows would quickly drop below the steady no-cheating cash flows. Our hypothetical potential first cheater now calculates that the present value of cheating is worse than remaining faithful to the agreement—no one cheats and collusion is the dominant strategy.

So there is, in principle, a tipping point determined by the size and durability of hypothetical cheating profits. If they move to the bigger/longer side of the line, the present value of cheating exceeds that of adherence, and cheating dominates. If otherwise, the agreement is stable. On which side of this border will we find ourselves in any particular case? Stigler's theory gives a simple answer: it depends on the normal variability of a seller's sales. The bigger this is, the harder for the seller to detect cheating and therefore the greater the likelihood that cheating will be the dominant strategy.

THE THEORY ESSENTIALLY TELLS US TO LOOK FOR MEANINGFUL DEPARTURES FROM COMPETITION BY CONNECTING THE STRUCTURE AND INSTITUTIONS OF THE MARKETPLACE TO THE NORMAL VARIABILITY OF FIRM SALES.

Now that we have summarized Stigler's theory and given it some context, we should note some of the richness of its implications. The theory essentially tells us to look for meaningful departures from competition by connecting the structure and institutions of the marketplace to the normal variability of firm sales—more variability equals less worry about departures from competition and, of course, vice versa. To illustrate, we pick up our example of the 6 firms randomly selected by 60 buyers, and note that competition depends on, among other things:

1. The number of firms. Say we have only 4 firms instead of 6. Then, keeping everything else the same, average sales will be 15 per firm and normal variability is smaller relative to this average.<sup>6</sup> Hence, collusion is more likely to be stable.
2. Concentration. Say we still have 6 sellers, but 3 of them merge. Think of this as if 1 firm now will get a sale any time a buyer throws a 1 or a 2 or a 3. There is less competition now, because some of the random bad luck of a 1 losing a customer to a 2 or a 3, etc. has been eliminated. The big firm can more easily detect cheating by any of the little ones.

3. Buyer loyalty. Suppose that instead of throwing a die, in most weeks buyers tend to buy from some preferred seller. This reduces any one seller's normal variability (to zero in the extreme case of a fixed number of buyers with unvarying weekly demands each completely loyal to a specific seller). Result: less competition. Buyer loyalty is not rewarded with more competition. You can also begin to understand the corollary: Smart buyers spread the business around so as to exacerbate the sellers' information problem.
4. Buyer size. Say we have 30 buyers, each taking two per week, instead of 60 taking one. Normal sales variability is higher here, because two sales are riding on each roll of the die instead of one. Ergo, competition is stronger in this case. The notion of large buyers having "clout" or "power" acquires a certain precision in Stigler's theory.
5. Overall demand variability. Say the buyers come to market with big orders some weeks and none in others, instead of having a steady weekly demand. Or suppose the total number of buyers moves around in ways that are hard for any one seller to detect. Then normal sales variability will be higher and competition will, therefore, be stronger.

This ability of the theory to connect a variety of circumstances to a unifying theme explains why, as we describe in the next section, Stigler's article had such a large influence on competition law. Take any set of circumstances and ask what are the implications for a seller's normal sales variability. According to the theory, you have an important clue about the ultimate ability of the firms to sustain

TAKE ANY SET OF CIRCUMSTANCES  
AND ASK WHAT ARE THE  
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NORMAL SALES VARIABILITY.

a price above the competitive level. This is not the only question you would ask, but it is likely to be a recurring and important one.

Another question the theory suggests you would ask is whether some arrangement at issue helps or hinders the seller in cutting through the normal variability to a faster separation of truth from noise. The answers here sometimes have a paradoxical more-is-less ring to them. For example, would you, as an industrial buyer, want to know what your competitors paid for the same item? The instinct is to say "yes, and if I learn I paid more than them it is ammunition I can use in negotiating a better deal." But not so fast. If you can easily find out what other buyers paid, then the sellers probably can also find out. If each seller can quickly learn others' prices, the prospective speed of response to hypothetical cheating increases and cheating is less likely to be a dominant strategy.

Unlike what you learned in Econ 101, more information is not necessarily better (for buyers). As a corollary, some ways in which small number buyer-seller markets differ from, say, retail markets become intelligible. For example, consider the jealous guarding of transaction prices by buyers or the negotiation of discounts from a published list price that is never actually charged. Information is being

obscured and time is taken up with haggling. But consider the implications if the transaction prices are revealed or, equivalently, the list prices are never discounted. The quick revelation of transaction prices in this case would stabilize collusion. Ergo, competition works sometimes to obscure information; the sand in the wheels signals the buyer that the seller is not colluding.<sup>7</sup> Again, we have a simple benchmark question for competition policy to ask of a particular practice—does it speed up or slow down the dissemination of transaction prices and quantities? And we have a broadly applicable answer—more (speed) is less (competition).

### III. Why the Contribution is a Landmark

#### A. INDUSTRIAL ORGANIZATION

The study of oligopoly has vexed scholars because the range of observed behavior seems to be quite varied. It had long been observed that the behavior in some, though not all, concentrated industries was not well described by the model of competition. How should one model this type of oligopoly behavior? One tradition looked to industry structure (numbers, concentration) as the source of deviations from competition. If there were sufficiently few significant firms, rivals could no longer ignore each other in their decision-making. The way firms competed was often described by various types of models that assumed a particular type of interaction among firms. So, for example, firms could play a Cournot game in which one firm assumed that its rivals' output was unchanging as it varied its own output, or a Bertrand game in which one firm assumed that its rivals' price remained unchanged as it varied its price. Or one firm could have a "conjectural variation" in which it assumed that if it varied its output by, say, one unit, its rivals would increase their collective output by some assumed amount,  $\theta$ . In today's terminology, these are static games.

It was of course recognized that these types of static models greatly oversimplified actual oligopolies by relying on static concepts. Some earlier work (e.g., Chamberlin<sup>8</sup> and Fellner<sup>9</sup>) had emphasized the importance of uncertainty and dynamic considerations in understanding how competitive oligopolies could be.

Despite the prior contributions such as Chamberlin's and Fellner's, it took Stigler's article to shake the foundation of the prevailing beliefs about oligopoly at that time. Basically, Stigler said that the assumptions in the literature about how firms interact with each other (e.g., conjectural variation type assumptions) come out of thin air and there is no reason to believe them: "A satisfactory theory of oligopoly cannot begin with assumptions concerning the way in which each firm views its interdependence with its rivals. . . . [B]ehavior is no longer something to be assumed but rather something to be deduced."<sup>10</sup> Stigler sought to identify the exogenous conditions that would determine how each firm would interact with its rivals and thereby determine the degree to which each industry would wind up with prices that differ from the competitive ones.

STIGLER USED THE THEORY OF INFORMATION (WHICH HE HAD PIONEERED THREE YEARS EARLIER) TO EXPLAIN HOW ANY ATTEMPT TO SET PRICES ABOVE COMPETITIVE LEVELS FOR ANY BUYER WOULD CREATE INCENTIVES FOR ONE RIVAL TO TRY TO STEAL ITS RIVALS' CUSTOMERS.

As the previous section illustrates, Stigler used the theory of information (which he had pioneered three years earlier) to explain how any attempt to set prices above competitive levels for any buyer would create incentives for one rival to try to steal its rivals' customers. If such stealing was hard to detect and

was very profitable, it would be worth trying as long as the penalty—some form of price competition—was not too severe. As our previous discussion illustrates, Stigler emphasized the heterogeneous nature not just of the sellers—which provides the firms with different incentives as to what price to set and what risks to take in trying to undercut a rival's price—but also the heterogeneous nature of buyers.

Specifically, large buyers are worth a lot when price is above marginal cost and they will be attractive targets for rivals. Moreover, buyers differ a lot in the frequency and predictability of their buying behavior. The effect of all these characteristics on the likelihood of cheating can be analyzed by seeing how they affect the expected profitability of a price cut. This profitability will depend upon the ease of detecting an attempt by one rival to steal another's customer by undercutting price and, if undetected, the profitability of stealing a rival's customer, and, if detected, the decrease in profits from the retaliatory competition. The analysis suggests that small buyers are more likely than large buyers to pay high prices, and that in industries where detection of undercutting is hard (such as where new big buyers come and go frequently) or where it is hard to get information on what your rivals are doing, one expects to see lower prices, *ceteris paribus*. The insights that heterogeneity of buyers fosters competition, that increases in competition follow from ease of customer switching, and that the ability to use long-term contracts to lock in a big buyer at a discounted price without having to worry that a rival will steal back the customer are all insights that emerge effortlessly from the theory.

Stigler goes on to test his theory empirically, but the tests that he describes as “fragments of evidence” do not really test the theory very well. Instead, his tests are based upon showing the positive relation of price to concentration—exactly the kind of tests done in the structure-conduct-performance literature that Stigler disliked so much. Stigler recognizes the limitation of his empirical tests, which fail to test the novel aspects of his theory. It was not new in 1964 to say that concentration affects prices, but it was new to use information theory to identify under what conditions detection of price-cutting would be difficult. Stigler ends his article by asking for more tests as better data become available. Interestingly, the one variable that Stigler focuses most on in his empirical tests—concentration (or number of competitors)—is one variable that the sub-

sequent literature in industrial organization has established may not, in many contexts, be appropriate to regard as exogenous.<sup>11</sup>

Stigler's insights are quite remarkable, especially given that they occur before the game theory revolution in industrial organization. Game theorists, just like Stigler had done, have subsequently demolished the literature on conjectural variations as baseless on theoretical grounds, though they fail to explain which variables are the strategic ones on which there is competition (e.g., price or quantity).

Stigler's article did have a large impact on how industrial organization economists subsequently studied oligopoly. For example, Stigler focuses attention on what are the sources of information used to detect cheating or undercutting any agreed-upon price. These sources of information are likely to vary by industry. In some industries, quantities are easily observed, but not prices, while the reverse may be true in other industries. The information set will influence what methods firms use to compete in an oligopoly equilibrium. For example, Carlton<sup>12</sup> showed that delivered pricing is a great way to collude if only price information is available, but not so great if only quantity information is available (in which case, fob ("free-on-board") pricing is the better way to collude since it neatly allocates customers to firms).

Stigler's theory can perhaps best be roughly described as a dynamic formulation of a non-cooperative game in which detection of price-undercutting triggers some reaction that results in a lower price as a result of the detection. Stigler's theory implies that whatever level a

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current price is set at will influence the incentive of others to cheat, as will the ability to detect any price cut and the consequences of such detection on subsequent pricing. This insight led to the use of dynamic game theory to model Stigler's set-up. Green & Porter<sup>13</sup> and Porter<sup>14</sup> attempted to operationalize Stigler's theory by assuming that firms follow a trigger strategy: Once a low price is observed, that low price triggers a price war for some period, after which the firms revert to charging a high price. Though trigger pricing has been criticized for the implication that price wars occur even in the absence of cheating, these papers capture much of the flavor of Stigler's paper. Moreover, this formulation allows one to test what happens as demand unexpectedly changes and whether, as Stigler predicts, this leads to price-cutting. The answer is yes.<sup>15</sup>

Unfortunately, many authors of subsequent empirical (and theoretical) literature in industrial organization have lost interest in the determinants of the behavior of oligopolists. For example, investigating the effect of buyer heterogeneity on competition has become increasingly rare. Instead, much of the

recent empirical literature in industrial organization has focused on detailed econometric estimation of demand systems.<sup>16</sup> The improved demand estimation is all to the good. But these papers tend to gloss over the oligopoly interactions. This interaction seems frequently to be cast in terms of static Bertrand or, in more complicated papers using dynamic game theory, some Markov perfect equilibrium whose believability might be questioned. The “Folk Theorems” that game theorists have produced say that any price equilibrium can be supported in a dynamic game. This may square with the observation that we observe lots of different oligopoly behavior, but we think it renders economics quite useless for understanding oligopoly behavior. We need to understand better why those theorems fail.

Stigler asked that we figure out why some equilibrium persists in one industry but not another, and to understand how the underlying industry characteristics influence that equilibrium. Some work along these lines has been done. For example, Genesove & Mullin<sup>17</sup> use Bresnahan's concept of a behavior parameter to estimate what that behavior parameter<sup>18</sup> depends on. Unfortunately, such a set-up relies on a static conjectural variation game (see Corts<sup>19</sup>) so it cannot really be said to implement Stigler's model.<sup>20</sup> Some of the recent empirical work based on the work of Maskin & Tirole<sup>21</sup> makes some progress by investigating how the interaction among firms changes as the time period over which prices remain fixed changes. If one could make the period endogenous based on switch-

ing probabilities and transaction cost, perhaps one could make some additional progress in pursuing Stigler's research agenda.<sup>22</sup>

HOWEVER, OUR OWN SENSE OF THE LITERATURE IS THAT IT IS NOT PROCEEDING DOWN THE PATH STIGLER WANTED TO GO. IT HAS VEERED OFF, ESPECIALLY IN MERGER STUDIES.

However, our own sense of the literature is that it is not proceeding down the path Stigler wanted to go. It has veered off, especially in merger studies. Too much attention is being paid to merger simulations based on static

Bertrand assumptions. We think the profession would do well to reread Stigler and resume his quest for understanding the determinants of oligopoly in which the desire to get a rival's customer by price-undercutting is a constant feature of oligopoly behavior, and in which the frequency of such undercutting will depend in part on information availability.

## B. ANTITRUST

Stigler's article has had, and continues to have, a profound effect on the understanding of oligopoly in antitrust and is used heavily in merger analysis around the world. This influence is clear in Posner's 1976 edition of *Antitrust Law*.<sup>23</sup> This book, together with Bork's *The Antitrust Paradox*,<sup>24</sup> pioneered the application of economics to antitrust. Posner's exposition of the oligopoly problem draws heavily on Stigler's article. He explains that Stigler's “alternative approach that is at once subtle and simple”<sup>25</sup> provides the way to understand how oligopolies

behave. Posner's lucid exposition—much clearer, especially for a non-technical reader than Stigler's—goes through a laundry list of factors that, according to Stigler's theory, will lead to more rather than less competitive behavior. In the several editions of their textbook, *Modern Industrial Organization*, Carlton & Perloff go through much the same list, also relying on Stigler.<sup>26</sup>

To illustrate the extent to which Stigler influenced his followers, we note one curiosity. One can measure concentration in an industry in different ways. For example, one could use the share of sales accounted for by the top four firms (CR4) or one could use the HHI index (the sum of squares of individual market shares). Empirically, these two measures are correlated across industries and therefore it is unlikely that an empirical finding will depend on which measure is used. (Indeed, even Stigler's own empirical analysis in his article noted that, for the industries where he had data, the correlation of CR4 with HHI was .94).<sup>27</sup> Stigler's theory about detection used a highly stylized example of inference to show that the ability to detect cheating depends on the HHI. Stigler does not show that this translates into a price effect that is related to the HHI. However, Stigler's admirers often mention the superiority of the HHI over CR4 for measuring industry concentration even though that proposition had not been demonstrated empirically.<sup>28</sup> We suspect that it was William Baxter's admiration for Stigler's economic insights that led him to use HHI, not CR4, in the Merger Guidelines of 1982 when he was Assistant Attorney General in the Antitrust Division.

The Department of Justice Merger Guidelines issued in 1982 illustrate the enormous influence of Stigler's article on antitrust policy, especially merger policy. These Guidelines are widely viewed as a watershed event in the history of antitrust and represent the use of sophisticated economics as the foundation of antitrust policy. Section III "Horizontal Mergers" subsection C "Other Factors" goes through many of the factors identified in the Stigler article, and the entire tone of the discussion makes clear that the Department of Justice understood and endorsed Stigler's emphasis that information about price is key to understanding the likelihood of non-competitive pricing. This section of the Guidelines is expanded a bit in the 1984 revision of the Merger Guidelines in Section 3.4 "Other Factors."

Probably the clearest illustration of Stigler's influence comes in the 1992 Horizontal Guidelines where an entire section (Section 2.1) is devoted to describing the way in which "coordinated interaction" works. That section reads as a summary of Stigler's article.<sup>29</sup> That description makes clear that "coordinated interaction entails reaching terms" on such matters as price, an ability to monitor price or output in

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order to detect deviations from the terms, and an ability to punish. These are exactly the ingredients that Stigler laid out in his article.

Interestingly, that version of the Guidelines also highlighted what is called “unilateral” conduct in which the merged firm by itself has sufficient market power to raise prices of the products involved in the merger. The distinction between unilateral and coordinated effects as ways in which a merger can harm consumers has led to a curious result. It has diverted attention away from studying coordinated effects to studying “unilateral effects” which, in practice, involves a merger simulation under an assumption of static Bertrand competition. Carlton<sup>30</sup> has criticized this distinction between unilateral and coordinated conduct, but our point here is that the attention to “unilateral effects” in the 1992 Guidelines has led to a shift in research focus away from the topic Stigler identified as crucial for understanding oligopoly behavior, namely the derivation of the competitive behavior in an industry from the exogenous facts of the industry.

The 2010 Horizontal Merger Guidelines that were recently issued devote an entire section to “coordinated effects” (Section 7) and reiterate much of the prior Guidelines’ discussion. It is hard to imagine a more fitting tribute to the insightfulness of an article than to have it remain a key building block of antitrust policy almost 50 years after being published.

## IV. Conclusion

Stigler never chose to enter the government and influence policy from the inside. Instead he believed that he could have much more influence from the outside through his academic articles. There is no question that his article on oligopoly was a first rate scholarly contribution that has had an enormous impact on policy. ▼

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1 George J. Stigler, *A Theory of Oligopoly*, J. POL. ECON. (1964) reprinted in 6(2) COMPETITION POL’Y INT’L at 253 (Autumn, 2010).

2 *Id.* at 44.

3 *Id.* at 45.

4 Whereby the six of us set up a single order taker who then parcels out 10 sales to each. This kind of arrangement came under legal attack soon after passage of the Sherman Act.

5 Indeed Stigler’s oligopoly theory comes three years after, and is an application of his path-breaking theory of information. See George J. Stigler, *The Economics of Information*, J. POL. ECON. 69, 213-25 (1961).

6 In statistics jargon, the coefficient of variation—the standard deviation divided by the mean—is the crucial variability measure for Stigler’s information problem.

- 7 An interesting example of this dimension of competition lies in the response of the trucking and rail-road industries to deregulation. Previously they were required to adhere to published tariffs approved by their regulator. Since deregulation, the majority of freight has moved under confidential tariffs, i.e., individually negotiated prices that are not publicly revealed.
- 8 EDWARD H. CHAMBERLIN, *THEORY OF MONOPOLISTIC COMPETITION* (1933).
- 9 WILLIAM FELLNER, *COMPETITION AMONG THE FEW* (1949).
- 10 Stigler, *supra* note 1 at 44.
- 11 See JOHN SUTTON, *SUNK COSTS AND MARKET STRUCTURE* (1991) and JOHN SUTTON, *TECHNOLOGY AND MARKET STRUCTURE* (1998).
- 12 Dennis W. Carlton, *A Reexamination of Delivered Pricing Systems*, *J. L. ECON.* 26, 51-70 (1983).
- 13 Edward J. Green & Robert H. Porter, *Noncooperative Collusion Under Imperfect Price Information*, *ECONOMETRICA* 52, 87-100 (1984).
- 14 Robert H. Porter, *A Study of Cartel Stability: The Joint Executive Committee, 1880-1886*, *BELL J. ECON.* 14, 301-14 (1983) and Robert H. Porter, *Optimal Cartel Trigger Price Strategies*, *J. ECON. THEORY* 313-38 (1983).
- 15 Porter, *A Study of Cartel Stability, Id.*
- 16 See Liran Einav & Jonathan Levin, *Empirical Industrial Organization: A Progress Report*, *J. ECON. PERSP.* 24, 145-62 (2010).
- 17 David Genesove & Wallace P. Mullin, *Testing Static Oligopoly Models: Conduct and Cost in the Sugar Industry, 1890-1914*, *RAND J. ECON.* 29, 355-77 (1998).
- 18 See Timothy F. Bresnahan, *Empirical Studies of Industries with Market Power*, *THE HANDBOOK OF INDUSTRIAL ORGANIZATION*, VOL. II (Richard Schmalensee & Robert Willig eds.) (1989).
- 19 Kenneth S. Corts, *Conduct Parameters and the Measurement of Market Power*, *J. ECONOMETRICS* 88, 227-50 (1999).
- 20 This is not quite right as Bresnahan, *supra* note 18, points out. If one forces a dynamic game into a static model, then one may be better off allowing for a conduct parameter in a static game if one wants to use the estimated model for prediction. But, see Corts, *id.*
- 21 Eric Maskin & Jean Tirole, *A Theory of Dynamic Oligopoly, I: Overview and Quantity Competition with Large Fixed Costs*, *ECONOMETRICA* 56, 549-69 (1988) and Eric Maskin & Jean Tirole, *A Theory of Dynamic Oligopoly, II: Price Competition, Kinked Demand Curves, and Edgeworth Cycles*, *ECONOMETRICA* 56, 571-99 (1988).
- 22 See, e.g., Wang for some work showing how Maskin & Tirole's theory can be tested when the fixed period varies. Zhongmin Wang, *(Mixed) Strategy in Oligopoly Pricing: Evidence from Gasoline Price Cycles Before and Under a Timing Regulation*, *J. POL. ECON.* 117, 987-1030 (2009).
- 23 RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* (1976).
- 24 ROBERT BORK, *THE ANTITRUST PARADOX* (1978).

25 POSNER, *supra* note 23 at 47.

26 DENNIS W. CARLTON & JEFFREY M. PERLOFF, MODERN INDUSTRIAL ORGANIZATION (1990) (1994) (2000) (2004).

27 See Stigler, *supra* note 1 at 57, footnote 15.

28 See, e.g., POSNER, *supra* note 23 at 55, footnote 26.

29 Indeed, one of us (Carlton) assigns this section to his graduate class when he teaches Stigler's article.

30 Dennis W. Carlton, *Revising the Horizontal Merger Guidelines*, J. COMPETITION L. ECON. (forthcoming).

# A Theory of Oligopoly

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George J. Stigler\*

No one has the right, and few the ability, to lure economists into reading another article on oligopoly theory without some advance indication of its alleged contribution. The present paper accepts the hypothesis that oligopolists wish to collude to maximize joint profits. It seeks to reconcile this wish with facts, such as that collusion is impossible for many firms and collusion is much more effective in some circumstances than in others. The reconciliation is found in the problem of policing a collusive agreement, which proves to be a problem in the theory of information. A considerable number of implications of the theory are discussed, and a modest amount of empirical evidence is presented.

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\*This article was originally published in *The Journal of Political Economy*, Vol. 72, No. 1 (Feb., 1964), pp. 44-61. It is reprinted by permission of the University of Chicago Press. In 1964, George Stigler was a Professor of Economics at the University of Chicago; he won the Nobel Memorial Prize in Economics Sciences in 1982. His original author's footnote to the article reads, "University of Chicago. I am indebted to Claire Friedland for the statistical work and to Harry Johnson for helpful criticisms."

## I. The Task of Collusion

A satisfactory theory of oligopoly cannot begin with assumptions concerning the way in which each firm views its interdependence with its rivals. If we adhere to the traditional theory of profit-maximizing enterprises, then behavior is no longer something to be assumed but rather something to be deduced. The firms in an industry will behave in such a way, given the demand-and-supply functions (including those of rivals), that their profits will be maximized.

The combined profits of the entire set of firms in an industry are maximized when they act together as a monopolist. At least in the traditional formulation of the oligopoly problem, in which there are no major uncertainties as to the profit-maximizing output and price at any time, this familiar conclusion seems inescapable. Moreover, the result holds for any number of firms.

Our modification of this theory consists simply in presenting a systematic account of the factors governing the feasibility of collusion, which like most things in this world is not free. Before we do so, it is desirable to look somewhat critically at the concept of homogeneity of products, and what it implies for profit-maximizing. We shall show that collusion normally involves much more than “the” price.

Homogeneity is commonly defined in terms of identity of products or of (what is presumed to be equivalent) pairs of products between which the elasticity of substitution is infinite. On either definition it is the behavior of buyers that is decisive. Yet it should be obvious that products may be identical to any or every buyer while buyers may be quite different from the viewpoint of sellers.

This fact that every transaction involves two parties is something that economists do not easily forget. One would therefore expect a definition of homogeneity also to be two-sided: if the products are what sellers offer, and the purchase commitments are what the buyers offer, full homogeneity clearly involves infinite elasticities of substitution between both products and purchase commitments. In other words, two products are homogeneous to a buyer if he is indifferent between all combinations of  $x$  of one and (say)  $20 - x$  of the other, at a common price. Two purchase commitments are homogeneous to a seller if he is indifferent between all combinations of  $y$  of one and (say)  $20 - y$  of the other, at a common price. Full homogeneity is then defined as homogeneity both in products (sellers) and purchase commitments (buyers).

The heterogeneity of purchase commitments (buyers), however, is surely often at least as large as that of products within an industry, and sometimes vastly larger. There is the same sort of personal differentia of buyers as of sellers—ease in making sales, promptness of payment, penchant for returning goods, likelihood of buying again (or buying other products). In addition there are two differences among buyers which are pervasive and well recognized in economics:

1. The size of purchase, with large differences in costs of providing lots of different size.
2. The urgency of purchase, with possibly sufficient differences in elasticity of demand to invite price discrimination.

It is one thing to assert that no important market has homogeneous transactions, and quite another to measure the extent of the heterogeneity. In a regime of perfect knowledge, it would be possible to measure heterogeneity by the variance of prices in transactions; in a regime of imperfect knowledge, there will be dispersion of prices even with transaction homogeneity.<sup>1</sup>

The relevance of heterogeneity to collusion is this: It is part of the task of maximizing industry profits to employ a price structure that takes account of the larger differences in the costs of various classes of transactions. Even with a single, physically homogeneous product the profits will be reduced if differences among buyers are ignored. A simple illustration of this fact is given in the Appendix; disregard of differences among buyers proves to be equivalent to imposing an excise tax upon them, but one which is not collected by the monopolist. A price structure of some complexity will usually be the goal of collusive oligopolists.

## II. The Methods of Collusion

Collusion of firms can take many forms, of which the most comprehensive is outright merger. Often merger will be inappropriate, however, because of diseconomies of scale,<sup>2</sup> and at certain times and places it may be forbidden by law. Only less comprehensive is the cartel with a joint sales agency, which again has economic limitations—it is ill suited to custom work and creates serious administrative costs in achieving quality standards, cost reductions, product innovations, etc. In deference to American antitrust policy, we shall assume that the collusion takes the form of joint determination of outputs and prices by ostensibly independent firms, but we shall not take account of the effects of the legal prohibition until later. Oligopoly existed before 1890, and has existed in countries that have never had an antitrust policy.

The colluding firms must agree upon the price structure appropriate to the transaction classes which they are prepared to recognize. A complete profit-maximizing price structure may have almost infinitely numerous price classes: the firms will have to decide upon the number of price classes in the light of the costs and returns from tailoring prices to the diversity of transactions. We have already indicated by hypothetical example (see Appendix) that there are net profits to be obtained by catering to differences in transactions. The level of collusive prices will also depend upon the conditions of entry into the industry as well as upon the elasticities of demand.

Let us assume that the collusion has been effected, and a price structure agreed upon. It is a well-established proposition that if any member of the agreement can secretly violate it, he will gain larger profits than by conforming to it.<sup>3</sup> It is, moreover, surely one of the axioms of human behavior that all agreements whose violation would be profitable to the violator must be enforced. The literature of collusive agreements, ranging from the pools of the 1880's to the electrical conspiracies of recent times, is replete with instances of the collapse of conspiracies because of "secret" price-cutting. This literature is biased: conspiracies that are successful in avoiding an amount of price-cutting which leads to collapse of the agreement are less likely to be reported or detected. But no conspiracy can neglect the problem of enforcement.

Enforcement consists basically of detecting significant deviations from the agreed-upon prices. Once detected, the deviations will tend to disappear because they are no longer secret and will be matched by fellow conspirators if they are not withdrawn. If the enforcement is weak, however—if price-cutting is detected only slowly and incompletely—the conspiracy must recognize its weakness: it must set prices not much above the competitive level so the inducements to price-cutting are small, or it must restrict the conspiracy to areas in which enforcement can be made efficient.

Fixing market shares is probably the most efficient of all methods of combating secret price reductions. No one can profit from price-cutting if he is moving along the industry demand curve,<sup>4</sup> once a maximum profit price has been chosen. With inspection of output and an appropriate formula for redistribution of gains and losses from departures from quotas, the incentive to secret price-cutting is eliminated. Unless inspection of output is costly or ineffective (as with services), this is the ideal method of enforcement, and is widely used by legal cartels. Unfortunately for oligopolists, it is usually an easy form of collusion to detect, for it may require side payments among firms and it leaves indelible traces in the output records.

Almost as efficient a method of eliminating secret price-cutting is to assign each buyer to a single seller. If this can be done for all buyers, short-run price-cutting no longer has any purpose. Long-run price-cutting will still be a serious possibility if the buyers are in competition: lower prices to one's own customers can then lead to an expansion of their share of their market so the price-cutter's long-run demand curve will be more elastic than that of the industry. Long-run price-cutting is likely to be important, however, only where sellers are providing a major cost component to the buyer.

There are real difficulties of other sorts to the sellers in the assignment of buyers. In general the fortunes of the various sellers will differ greatly over time: one seller's customers may grow threefold, while another seller's customers shrink by half. If the customers have uncorrelated fluctuations in demand, the various sell-

ers will experience large changes in relative outputs in the short run.<sup>5</sup> Where the turnover of buyers is large, the method is simply impracticable.

Nevertheless, the conditions appropriate to the assignment of customers will exist in certain industries, and in particular the geographical division of the market has often been employed. Since an allocation of buyers is an obvious and easily detectable violation of the Sherman Act, we may again infer that an efficient method of enforcing a price agreement is excluded by the antitrust laws. We therefore turn to other techniques of enforcement, but we shall find that the analysis returns to allocation of buyers.

In general the policing of a price agreement involves an audit of the transactions prices [sic]. In the absence or violation of antitrust laws, actual inspection of the accounting records of sellers has been employed by some colluding groups, but even this inspection gives only limited assurance that the price agreement is adhered to.<sup>6</sup> Ultimately, there is no substitute for obtaining the transaction prices from the buyers.

An oligopolist will not consider making secret price cuts to buyers whose purchases fall below a certain size relative to his aggregate sales. The ease with which price-cutting is detected by rivals is decisive in this case. If  $p$  is the probability that some rival will hear of one such price reduction,  $1 - (1 - p)^n$  is the probability that a rival will learn of at least one reduction if it is given to  $n$  customers. Even if  $p$  is as small as 0.01, when  $n$  equals 100 the probability of detection is .634, and when  $n$  equals 1000 it is .99996. No one has yet invented a way to advertise price reductions which brings them to the attention of numerous customers but not to that of any rival.<sup>7</sup>

It follows that oligopolistic collusion will often be effective against small buyers even when it is ineffective against large buyers. When the oligopolists sell to numerous small retailers, for example, they will adhere to the agreed-upon price, even though they are cutting prices to larger chain stores and industrial buyers. This is a first empirical implication of our theory. Let us henceforth exclude small buyers from consideration.

The detection of secret price-cutting will of course be as difficult as interested people can make it. The price-cutter will certainly protest his innocence, or, if this would tax credulity beyond its taxable capacity, blame a disobedient subordinate. The price cut will often take the indirect form of modifying some non-price dimension of the transaction. The customer may, and often will, divulge price reductions, in order to have them matched by others, but he will learn from experience if each disclosure is followed by the withdrawal of the lower price offer. Indeed the buyer will frequently fabricate wholly fictitious price offers to test the rivals. Policing the collusion sounds very much like the subtle and complex problem presented in a good detective story.

There is a difference: In our case the man who murders the collusive price will receive the bequest of patronage. The basic method of detection of a price-cutter must be the fact that he is getting business he would otherwise not obtain. No promises of lower prices that fail to shift some business can be really effective—either the promised price is still too high or it is simply not believed.

Our definition of perfect collusion, indeed, must be that no buyer changes sellers voluntarily. There is no competitive price-cutting if there are no shifts of buyers among sellers.

To this rule that price-cutting must be inferred from shifts of buyers there is one partial exception, but that an important one. There is one type of buyer who usually reveals the price he pays, and does not accept secret benefices: the government. The system of sealed bids, publicly opened with full identification of each bidder's price and specifications, is the ideal instrument for the detection of price-cutting. There exists no alternative method of secretly cutting prices (bribery of purchasing agents aside). Our second empirical prediction, then, is that collusion will always be more effective against buyers who report correctly and fully the prices tendered to them.<sup>8</sup>

It follows from the test of the absence of price competition by buyer loyalty—and this is our third major empirical prediction—that collusion is severely limited (under present assumptions excluding market-sharing) when the significant buyers constantly change identity. There exist important markets in which the (substantial) buyers do change identity continuously, namely, in the construction industries. The building of a plant or an office building, for example, is an essentially non-repetitive event, and rivals cannot determine whether the successful bidder has been a price-cutter unless there is open bidding to specification.

The normal market, however, contains both stability and change. There may be a small rate of entry of new buyers. There will be some shifting of customers even in a regime of effective collusion, for a variety of minor reasons we can lump together as “random factors.” There will often be some sharing of buyers by several sellers—a device commending itself to buyers to increase the difficulty of policing price agreements. We move then to the world of circumstantial evidence, or, as it is sometimes called, of probability.

### III. The Conditions for Detecting Secret Price Reductions

We shall investigate the problem of detecting secret price-cutting with a simplified model, in which all buyers and all sellers are initially of equal size. The number of buyers per seller—recalling that we exclude from consideration all buyers who take less than (say) 0.33 per cent of a seller's output—will range from 300 down to perhaps 10 or 20 (since we wish to avoid the horrors of full bilateral oli-

gopoly). A few of these buyers are new, but over moderate periods of time most are “old,” although some of these old customers will shift among suppliers. A potential secret price-cutter has then three groups of customers who would increase their patronage if given secret price cuts: the old customers of rivals; the old customers who would normally leave him; and new customers.

Most old buyers will deal regularly with one or a few sellers, in the absence of secret price-cutting. There may be no secret price-cutting because a collusive price is adhered to, or because only an essentially competitive price can be obtained. We shall show that the loyalty of customers is a crucial variable in determining which price is approached. We need to know the probability that an old customer will buy again from his regular supplier at the collusive price in the absence of secret price-cutting.

The buyer will set the economies of repetitive purchase (which include smaller transaction costs and less product-testing) against the increased probability of secret price-cutting that comes from shifting among suppliers. From the viewpoint of any one buyer, this gain will be larger the larger the number of sellers and the smaller the number of buyers, as we shall show below. The costs of shifting among suppliers will be smaller the more homogenous the goods and the larger the purchases of the buyer (again an inverse function of his size). Let us label this probability of repeat purchases  $p$ . We shall indicate later how this probability could be determined in a more general approach.

The second component of sales of a firm will be its sales to new buyers and to the floating old customers of rivals. Here we assume that each seller is equally likely to make a sale, in the absence of price competition.

Let us proceed to the analysis. There are  $n_o$  “old” buyers and  $n_n$  new customers, with  $n_n = \lambda n_o$  and  $n_s$  sellers. A firm may look to three kinds of evidence on secret price-cutting, and therefore by symmetry to three potential areas to practice secret price-cutting.

1. *The behavior of its own old customers.*—It has, on average,  $n_o/n_s$  such customers, and expects to sell to  $m_1 = pn_o/n_s$  of them in a given round of transactions, in the absence of price cutting. The variance of this number of customers is  $\sigma_1^2 = \frac{(1-p)n_o}{n_s}$ . The probability of the firm losing more old customers than  $\frac{(1-p)n_o}{n_s} + k\sigma_1$  is given by the probability of values greater than  $k$ . The expected number of these old customers who will shift to any one rival is, say,  $m_2 = \frac{1}{n_s - 1} \left[ \frac{(1-p)n_o}{n_s} + k\sigma_1 \right]$ , with a variance  $\sigma_2^2 = \frac{n_s - 2}{(n_s - 1)^2} \left[ \frac{(1-p)n_o}{n_s} + k\sigma_1 \right]$ . The probability that any rival will obtain more than  $m_2 + r\sigma_2$  of these customers is determined by  $r$ . We could now choose those combinations of  $k$  and  $r$  that fix a level of probability for the loss of a given number of old customers to any one

rival beyond which secret price-cutting by this rival will be inferred. This is heavy arithmetic, however, so we proceed along a less elegant route.

Let us assume that the firm's critical value for the loss of old customers, beyond which it infers secret price-cutting, is

$$\frac{(1-p)n_o}{n_s} + \sigma_1 = \frac{(1-p)n_o}{n_s} \left[ 1 + \sqrt{\left( \frac{p}{1-p} \frac{n_s}{n_o} \right)} \right] = \frac{(1-p)n_o}{n_s} (1 + \theta),$$

that is, one standard deviation above the mean. Any one rival will on average attract  $m_2 = \frac{1}{n_s - 1} \left[ \frac{(1-p)n_o}{n_s} + \sigma_1 \right]$  of these customers, with a variance of  $\sigma_2^2 = \frac{n_s - 2}{(n_s - 1)^2} \left[ \frac{(1-p)n_o}{n_s} + \sigma_1 \right]$ . Let the rival be suspected of price-cutting if he obtains more than  $(m_2 + \sigma_2)$  customers, that is, if the probability of any larger number is less than about 30 per cent. The joint probability of losing one standard deviation more than the average number of old customers and a rival obtaining one standard deviation more than his average share is about 10 per cent. The average sales of a rival are  $n_o/n_s$ , ignoring new customers. The maximum number of buyers any seller can obtain from one rival without exciting suspicion, minus the number he will on average get without price-cutting  $([1-p]n_o/n_s[n_s - 1])$ , expressed as a ratio to his average sales is  $\frac{[\theta(1-p)n_o/(n_s - 1)n_s + \sigma_2]}{n_o/n_s}$ . This criterion is tabulated in Table 1.

**Table 1**

Percentage Gains  
in Sales from  
Undetected  
Price-Cutting  
by a Firm

Criterion I:  $\frac{1}{(n_s - 1)} \left[ \theta(1-p) + \sqrt{\frac{n_o(n_s - 2)(1-p)(1 + \theta)}{n_o}} \right] \theta = \sqrt{\frac{p}{1-p} \frac{n_s}{n_o}}$

Probability of Repeat Sales ( $p$ )	No. of Buyers ( $n_o$ )	No. of Sellers					
		2	3	4	5	10	20
$p = 0.95$	20	6.9	11.3	11.3	11.4	11.8	12.7
	30	5.6	8.9	8.8	8.8	9.0	9.6
	40	4.9	7.5	7.4	7.4	7.5	7.9
	50	4.4	6.6	6.5	6.4	6.5	6.8
	100	3.1	4.4	4.3	4.3	4.2	4.4
	200	2.2	3.0	2.9	2.8	2.8	2.8
	400	1.5	2.1	2.0	1.9	1.8	1.8
$p = 0.90$	20	9.5	14.8	14.7	14.6	14.8	15.7
	30	7.8	11.7	11.5	11.4	11.4	12.0
	40	6.7	10.0	9.7	9.6	9.5	9.9
	50	6.0	8.8	8.6	8.4	8.3	8.6
	100	4.2	6.0	5.8	5.6	5.4	5.5
	200	3.0	4.1	3.9	3.8	3.6	3.6
	400	2.1	2.8	2.7	2.6	2.4	2.4

Continued on next page

Table 1,  
continued

Probability of Repeat Sales ( $p$ )	No. of Buyers ( $n_0$ )	No. of Sellers					
		2	3	4	5	10	20
$p = 0.80$	20	12.6	19.3	18.9	18.7	18.6	19.4
	30	10.3	15.4	15.0	14.7	14.5	15.0
	40	8.9	13.1	12.7	12.5	12.2	12.5
	50	8.0	11.6	11.2	11.0	10.6	10.8
	100	5.7	8.0	7.7	7.4	7.1	7.1
	200	4.0	5.5	5.3	5.1	4.8	4.7
	400	2.8	3.8	3.6	3.5	3.2	3.2
$p = 0.70$	20	14.5	22.3	21.8	21.5	21.2	21.9
	30	11.8	17.8	17.3	17.0	16.6	16.9
	40	10.2	15.2	14.8	14.5	14.0	14.2
	50	9.2	13.5	13.1	12.8	12.3	12.4
	100	6.5	9.3	9.0	8.7	8.2	8.2
	200	4.6	6.5	6.2	6.0	5.6	5.5
	400	3.2	4.5	4.3	4.2	3.8	3.7

The entries in Table 1 are measures of the maximum additional sales obtainable by secret price-cutting (expressed as a percentage of average sales) from any one rival beyond which that rival will infer that the price-cutting is taking place. Since the profitability of secret price-cutting depends upon the amount of business one can obtain (as well as upon the excess of price over marginal cost), we may also view these numbers as the measures of the incentive to engage in secret price-cutting. Three features of the tabulation are noteworthy:

- a) The gain in sales from any one rival by secret price-cutting is not very sensitive to the number of rivals, given the number of customers and the probability of repeat sales. The aggregate gain in sales of a firm from price-cutting—its total incentive to secret price-cutting—is the sum of the gains from each rival, and therefore increases roughly in proportion to the number of rivals.
- b) The incentive to secret price-cutting falls as the number of customers per seller increases—and falls roughly in inverse proportion to the square root of the number of buyers.
- c) The incentive to secret price-cutting rises as the probability of repeat purchases falls, but at a decreasing rate.

We have said that the gain to old buyers from shifting their patronage among sellers will be that it encourages secret price-cutting by making it more difficult to detect. Table 1 indicates that there are diminishing returns to increased shifting: The entries increase at a decreasing rate as  $p$  falls. In a fuller model we could intro-

duce the costs of shifting among suppliers and determine  $p$  to maximize expected buyer gains. The larger the purchases of a buyer, when buyers are of unequal size, however, the greater is the prospect that his shifts will induce price-cutting.

In addition it is clear that, when the number of sellers exceeds two, it is possible for two or more firms to pool information and thus to detect less extreme cases of price-cutting. For example, at the given probability levels, the number of old customers that any one rival should be able to take from a firm was shown to be at most  $(1-p) \frac{n_o(1+\theta)}{n_s-1}$ , with variance  $\frac{(n_s-2)(1-p)(1+\theta)}{(n_s-1)^2} n_o$ . At the same probability level, the average number of old customers that one rival should be able to take from  $T$  firms is at most  $\frac{T(1-p)n_o}{n_s-T} \left(1 + \frac{\theta}{\sqrt{T}}\right)$ , with the variance  $\frac{(n_s-T-1)}{(n_s-T)^2} (1-p) \left(1 + \frac{\theta}{\sqrt{T}}\right) n_o T$ . Each of these is smaller than the corresponding expression for one seller when expressed as a fraction of the customers lost by each of the firms pooling information.

There are of course limits to such pooling of information: not only does it become expensive as the number of firms increases, but also it produces less reliable information, since one of the members of the pool may himself be secretly cutting prices. Some numbers illustrative of the effect of pooling will be given at a later point.

2. *The attraction of old customers of other firms is a second source of evidence of price-cutting.*—If a given rival has not cut prices, he will on average lose  $(1-p)$  ( $n_o/n_s$ ) customers, with a variance of  $\sigma_1^2$ . The number of customers he will retain with secret price-cutting cannot exceed a level at which the rivals suspect the price-cutting. Any one rival will have little basis for judging whether he is getting a fair share of this firm's old customers, but they can pool their information and then in the aggregate they will expect the firm to lose at least  $(1-p)(n_o/n_s) - 2\sigma_1$  customers, at the 5 per cent probability level. Hence the secret price-cutter can retain at most  $2\sigma_1$  of his old customers (beyond his average number), which as a fraction of his average sales (ignoring new customers) is  $\frac{2\sigma_1}{n_o/n_s} = 2\sqrt{\frac{(1-p)pn_s}{n_o}}$ . This is tabulated as Table 2.

Table 2

Old Customers  
That a Secret  
Price-Cutter Can  
Retain, as a  
Percentage of  
Average Sales

Criterion II:  $2\sqrt{\frac{p(1-p)}{2} \frac{n_s}{n_o}}$

Probability That Old Customer Will Remain Loyal ( $p$ )	No. of Old Customers per Seller ( $n_o/n_s$ )			
	10	20	50	100
0.95	13.8	9.7	6.2	4.4
.90	19.0	13.4	8.5	6.0

Continued on next page

Table 2,  
continued

Probability That Old Customer Will Remain Loyal (p)	No. of Old Customers per Seller ( $n_o/n_s$ )			
	10	20	50	100
0.85	22.6	16.0	10.1	7.1
.80	25.3	17.9	11.3	8.0
.75	27.4	19.4	12.2	8.7
.70	29.0	20.5	13.0	9.2
.65	30.2	21.3	13.5	9.5
.60	31.0	21.9	13.9	9.8
.55	31.5	22.2	14.1	10.0
0.50	31.6	22.4	14.1	10.0

If the entries in Table 2 are compared with those in Table 1,<sup>9</sup> it is found that a price-cutter is easier to detect by his gains at the expense of any one rival than by his unusual proportion of repeat sales. This second criterion will therefore seldom be useful.

3. *The behavior of new customers is a third source of information on price-cutting.*— There are  $n_n$  new customers per period,<sup>10</sup> equal to  $\lambda n_o$ . A firm expects, in the absence of price-cutting, to sell to  $m_3 = \frac{1}{n_s} \lambda n_o$  of these customers, with a variance of  $\sigma_3^2 = \left(1 - \frac{1}{n_s}\right) \frac{\lambda n_o}{n_s}$ . If the rivals pool information (without pooling, this area could not be policed effectively), this firm cannot obtain more than  $m_3 + 2\sigma_3$  customers without being deemed a price-cutter, using again a 5 per cent probability criterion. As a percentage of the firm's total sales, the maximum sales above the expected number in the absence of price cutting[sic] are then  $\frac{2\sigma_3}{n_o(1 + \lambda)/n_s} = \frac{2}{1 + \lambda} \sqrt{\frac{\lambda(n_s - 1)}{n_o}}$ . We tabulate this criterion as Table 3.

Table 3

Maximum Additional  
New Customers  
(as a Percentage  
of Average Sales)  
Obtainable by  
Secret Price-Cutting

Rate of Appearance of New Buyers ( $\lambda$ )	No. of Old Buyers ( $n_o$ )	No. of Sellers					
		2	3	4	5	10	20
1/100	20	4.4	6.3	7.7	8.9	13.3	19.3
	30	3.6	5.1	6.3	7.2	10.8	15.8

Continued on next page

Table 3,  
Continued

Rate of Appearance of New Buyers ( $\lambda$ )	No. of Old Buyers ( $n_0$ )	No. of Sellers					
		2	3	4	5	10	20
	40	3.1	4.4	5.4	6.3	9.4	13.6
	50	2.8	4.0	4.8	5.6	8.4	12.2
	100	2.0	2.8	3.4	4.0	5.9	8.6
	200	1.4	2.0	2.4	2.8	4.2	6.1
	400	1.0	1.4	1.7	2.0	3.0	4.3
1/10	20	12.9	18.2	22.3	25.7	38.6	56.0
	30	10.5	14.8	18.2	21.0	31.5	45.8
	40	9.1	12.9	15.8	18.2	27.3	39.6
	50	8.1	11.5	14.1	16.3	24.4	35.4
	100	5.8	8.1	10.0	11.5	17.2	25.1
	200	4.1	5.8	7.0	8.1	12.2	17.7
	400	2.9	4.1	5.0	5.8	8.6	12.5
1/5	20	16.7	23.6	28.9	33.3	50.0	72.6
	30	13.6	19.2	23.6	27.2	40.8	59.3
	40	11.8	16.7	20.4	23.6	35.4	51.4
	50	10.5	14.9	18.3	21.1	31.6	46.0
	100	7.4	10.5	12.9	14.9	22.4	32.5
	200	5.3	7.4	9.1	10.5	15.8	23.0
	400	3.7	5.3	6.4	7.4	11.2	16.2
1/4	20	17.9	25.3	31.0	35.8	53.7	78.0
	30	14.6	20.7	25.3	29.2	43.8	63.7
	40	12.6	17.9	21.9	25.3	38.0	55.1
	50	11.3	16.0	19.6	22.6	33.9	49.3
	100	8.0	11.3	13.9	16.0	24.0	34.9
	200	5.7	8.0	9.8	11.3	17.0	24.7
	400	4.0	5.7	6.9	8.0	12.0	17.4

Two aspects of the incentive to cut prices (or equivalently the difficulty of detecting price cuts) to new customers are apparent: the incentive increases rapidly with the number of sellers<sup>11</sup> and the incentive increases with the rate of entry of new customers. As usual the incentive falls as the absolute number of customers per seller rises. If the rate of entry of new buyers is 10 per cent or more, price-cutting to new customers allows larger sales increases without detection that can be obtained by attracting customers of rivals (compare Tables 1 and 3).

Of the considerable number of directions in which this model could be enlarged, two will be presented briefly.

The first is inequality in the size of firms. In effect this complication has already been introduced by the equivalent device of pooling information. If we tabulate the effects of pooling of information by  $K$  firms, the results are equivalent to having a firm  $K$  times as large as the other firms. The number of old customers this large firm can lose to any one small rival (all of whom are equal in

size) is given, in Table 4, as a percentage of the average number of old customers of the small firm; the column labeled  $K = 1$  is of course the case analyzed in Table 1.

**Table 4**

Percentage Gains in Sales from Undetected Price-Cutting by a Small Firm

$$\text{Criterion IV: } \frac{1}{n_s - K} \left[ \theta(1 - p)\sqrt{K} + \sqrt{\frac{n_s K(1 - p)(n_s - K - 1)(1 + \theta\sqrt{K})}{n_o}} \right]$$

$$\theta = \sqrt{\frac{p}{1 - p} \frac{n_s}{n_o}}$$

Probability of Repeat Sales ( $p$ )	No. of Firms ( $n_s - K + 1$ )	Buyers per Small Seller ( $n_o/n_s$ )	Size of Large Firm ( $K$ )			
			1	2	5	9
$p = 0.9$	2	10	9.5	13.4	21.2	28.5
		30	5.5	7.7	12.2	16.4
		50	4.2	6.0	9.5	12.7
	3	10	11.7	15.8	23.9	31.4
		30	6.3	8.7	13.3	17.6
		50	4.8	6.6	10.2	13.5
	4	10	9.7	13.1	19.7	25.7
		30	5.2	7.1	10.9	14.4
		50	4.0	5.4	8.3	11.0
	10	10	5.4	7.2	10.7	14.0
		30	2.9	3.9	5.9	7.7
		50	2.2	2.9	4.5	5.9
$p = 0.8$	2	10	12.6	17.9	28.3	37.9
		30	7.3	10.3	16.3	21.9
		50	5.7	8.0	12.6	17.0
	3	10	15.4	21.0	32.1	42.3
		30	8.4	11.6	18.0	23.9
		50	6.4	8.9	13.8	18.4
	4	10	12.7	17.3	26.3	34.7
		30	6.9	9.5	14.7	19.5
		50	5.3	7.3	11.3	15.0
	10	10	7.1	9.5	14.4	18.9
		30	3.8	5.2	8.0	10.6
		50	2.9	4.0	6.1	8.1

The effects of pooling on the detection of price-cutting are best analyzed by comparing Table 4 with Table 1. If there are 100 customers and 10 firms (and  $p = 0.9$ ), a single firm can increase sales by 5.4 per cent by poaching on one rival, or about 50 per cent against all rivals (Table 1). If 9 firms combine, the maximum amount the single firm can gain by secret price-cutting is 28.9 per cent (Table 4). With 20 firms and 200 customers, a single firm can gain 3.6 per cent

from each rival, or about 30 per cent from 9 rivals; if these rivals merge, the corresponding figure falls to 14.0 per cent. The pooling of information therefore reduces substantially the scope for secret price-cutting.

This table exaggerates the effect of inequality of firm size because it fails to take account of the fact that the number of customers varies with firm size, on our argument that only customers above a certain size relative to the seller are a feasible group for secret price-cutting. The small firm can find it attractive to cut prices to buyers which are not large enough to be potential customers by price-cutting for the large seller.

The temporal pattern of buyers' behavior provides another kind of information: What is possibly due to random fluctuation in the short run cannot with equal probability be due to chance if repeated. Thus the maximum expected loss of old customers to a rival in one round of transactions is (at the  $1\sigma$  level)

$\frac{n_o}{(n_s - 1)n_s}(1 - p)(1 + \theta)$ , but for  $T$  consecutive periods the maximum expected loss is (over  $T$  periods)  $\frac{T}{n_s - 1}(1 - p) \frac{n_o}{n_s} [1 + \theta\sqrt{T}]$ , with a variance of  $\sigma_s^2 = \frac{(n_s - 2)}{(n_s - 1)^2} T(1 - p) \frac{n_o}{n_s} [1 + \theta\sqrt{T}]$ . This source of information is of minor efficacy in detecting price-cutting unless the rounds of successive transactions are numerous—that is, unless buyers purchase (enter contracts) frequently.

Our approach has certain implications for the measurement of concentration, if we wish concentration to measure likelihood of effective collusion. In the case of new customers, for example, let the probability of attracting a customer be proportional to the firm's share of industry output ( $s$ ). Then the variance of the firm's share of sales to new customers will be  $n_n s(1 - s)$ , and the aggregate for the industry will be  $C = n_n \sum_1^r s(1 - s)$  for  $r$  firms. This expression equals  $n_n(1 - H)$ , where  $H = \sum s^2$  is the Herfindahl index of concentration. The same index holds, as an approximation, for potential price-cutting to attract old customers.<sup>12</sup>

The foregoing analysis can be extended to non-price variables, subject to two modifications. The first modification is that there be a definite joint profit-maximizing policy upon which the rivals can agree. Here we may expect to encounter a spectrum of possibilities, ranging from a clearly defined optimum policy (say, on favorable legislation) to a nebulous set of alternatives (say, directions of research).<sup>13</sup> Collusion is less feasible, the less clear the basis on which it should proceed. The second modification is that the competitive moves of any one firm will differ widely among non-price variables in their detectability by rivals. Some forms of non-price competition will be easier to detect than price-cutting because they leave visible traces (advertising, product quality, servicing, etc.) but some variants will be elusive (reciprocity in purchasing, patent licensing arrangements). The common belief that non-price competition is more common than price competition is therefore not wholly in keeping with the present theory.

Those forms that are suitable areas for collusion will have less competition; those which are not suitable will have more competition.

### IV. Some Fragments of Evidence

Before we seek empirical evidence on our theory, it is useful to report two investigations of the influence of numbers of sellers on price. These investigations have an intrinsic interest because, so far as I know, no systematic analysis of the effect of numbers has hitherto been made.

The first investigation was of newspaper advertising rates, as a function of the number of evening newspapers in a city. Advertising rates on a milline basis are closely (and negatively) related to circulation, so a regression of rates on circulation was made for fifty-three cities in 1939. The residuals (in logarithmic form) from this regression equation are tabulated in Table 5.

**Table 5**  
Residuals from Regression of Advertising Rates on Circulation\*

No. of Evening Papers	n	Mean Residual (Logarithm)	Standard Deviation of Mean
One	23	0.0211	0.0210
With morning paper	10	-.0174	.0324
Without morning paper	13	.0507	.0233
Two	30	-0.0213	0.0135

\*The regression equation is

$$\log R = 5.194 - 1.688 \log c + .139(\log c)^2,$$

( .620)      ( .063)

where R is the 5 M milline rate and c is circulation.

Source: American Association of Advertising Agencies, *Market and Newspaper Statistics*, Vol. VIIIa (1939).

It will be observed that rates are 5 per cent above the average in one-newspaper towns and 5 per cent below the average in two-newspaper towns, and the towns with one evening paper but also an independent morning paper fall nearly midway between these points. Unfortunately there were too few cities with more than two evening newspapers to yield results for larger numbers of firms.

The second investigation is of spot commercial rates on AM radio stations in the four states of Ohio, Indiana, Michigan, and Illinois. The basic equation introduces, along with number of rivals, a series of other factors (power of station, population of the county in which the station is located, etc.). Unfortunately the number of stations is rather closely correlated with population ( $r^2 = .796$  in the logarithms). The general result, shown in Table 6, is similar to that for newspapers: the elasticity of price with respect to number of rivals is quite small (-.07). Here the range of stations in a county was from 1 to 13.

**Table 6**

Regression of AM  
Spot Commercial  
Rates (26 Times)  
and Station  
Characteristics,  
1961 ( $n = 345$ )

Independent Variables*	Regression Coefficient	Standard Error
1. Logarithm of population of county, 1960	.238	0.026
2. Logarithm of kilowatt power of station	.206	.015
3. Dummy variables of period of broadcasting:		
a) Sunrise to sunset	-.114	.025
b) More than (a), less than 18 hours	-.086	.027
c) 18-21 hours	-.053	.028
4. Logarithm of number of stations in county	-.074	0.046
	$R^2 = .743$	

\*Dependent variable: logarithm of average rate, May 1, 1961 (dollars).

Source: "Spot Radio Rates and Data," *Standard Rate and Data Service, Inc.*, Vol. XLIII, No. 5 (May 1961).

Both studies suggest that the level of prices is not very responsive to the actual number of rivals. This is in keeping with the expectations based upon our model, for that model argues that the number of buyers, the proportion of new buyers, and the relative sizes of firms are as important as the number of rivals.

To turn to the present theory, the only test covering numerous industries so far devised has been one based upon profitability. This necessarily rests upon company data, and it has led to the exclusion of a large number of industries for which the companies do not operate in a well-defined industry. For example, the larger steel and chemical firms operate in a series of markets in which their position ranges from monopolistic to competitive. We have required of each industry that the earnings of a substantial fraction of the companies in the industry (measured by output) be determined by the profitability of that industry's products, that is, that we have a fair share of the industry and the industry's product is the dominant product of the firms.

Three measures of profitability are given in Table 7: (1) the rate of return on all capital (including debt), [sic](2) the rate of return on net worth (stockholders' equity); (3) the ratio of market value to book value of the common stock.

In addition, two measures of concentration are presented: (1) the conventional measure, the share of output produced by the four leading firms; and (2) the Herfindahl index,  $H$ .

**Table 7**

**Profitability and Concentration Data**

Industry*	Concentration (1954)		Average Rate of Return (1953–57)		Ratio of Market Value to Book Value (1953–57)
	Share of Top 4	H <sup>†</sup>	All Assets	Net Worth	
Sulfur mining (4)	98	0.407	19.03	23.85	3.02
Automobiles (3)	98	.369	11.71	20.26	2.30
Flat glass (3)	90	.296	11.79	16.17	2.22
Gypsum products (2)	90	.280	12.16	20.26	1.83
Primary aluminum (4)	98	.277	6.87	13.46	2.48
Metal cans (4)	80	.260	7.27	13.90	1.60
Chewing gum (2)	86	.254	13.50	17.06	2.46
Hard-surface floor coverings (3)	87	.233	6.56	7.59	0.98
Cigarettes (5)	83	.213	7.23	11.18	1.29
Industrial gases (3)	84	.202	8.25	11.53	1.33
Corn wet milling (3)	75	.201	9.17	11.55	1.48
Typewriters (3)	83	.198	3.55	5.39	0.84
Domestic laundry equipment (2)	68	.174	9.97	17.76	1.66
Rubber tires (9)	79	.171	7.86	14.02	1.70
Rayon fiber (4)	76	.169	5.64	6.62	0.84
Carbon black (2)	73	.152	8.29	9.97	1.40
Distilled liquors (6)	64	0.118	6.94	7.55	0.77

\*The number of firms is given in parentheses after the industry title. Only those industries are included for which a substantial share (35 per cent or more) of the industry's sales is accounted for by the firms in the sample, and these firms derive their chief revenues (50 per cent or more) from the industry in question.

<sup>†</sup>H is Herfindahl index.

The various rank correlation measures are given in Table 8. The various concentration measures, on the one hand, and the various measures of profitability, on the other hand, are tolerably well correlated.<sup>14</sup> All show the expected positive relationship. In general the data suggest that there is no relationship between profitability and concentration if *H* is less than 0.250 or the share of the four largest firms is less than about 80 per cent. These data, like those on advertising rates, confirm our theory only in the sense that they support theories which assert that competition increases with number of firms.

**Table 8**

**Rank Correlations of Measures of Profitability and Measures of Concentration**

Measure of Concentration	Measure of Profitability		
	Rate of Return on All Assets	Rate of Return on Net Worth	Ratio of Market Value to Book Value
Share of output produced by four largest firms	.322	.507	.642
Herfindahl index ( <i>H</i> )	.524	.692	.730

Our last evidence is a study of the prices paid by buyers of steel products in 1939, measured relative to the quoted prices (Table 9). The figure of 8.3 for hot-rolled sheets for example, represents an average of 8.3 per cent reduction from quoted prices, *paid by buyers*, with a standard deviation of 7.3 per cent of quoted prices. The rate of price-cutting is almost perfectly correlated with the standard deviation of transaction prices, as we should expect: the less perfect the market knowledge, the more extensive the price-cutting.

**Table 9**

Prices of Steel Products, 1939, and Industry Structure, 1938

Product Class	Prices, 2d Quarter, 1939 (Per Cent)		Herfindahl Index	Output in 1939 Relative to 1937
	Average Discount from List Price	Standard Deviation		
Hot-rolled sheets	8.3	7.3	0.0902	1.14
Merchant bars	1.2	4.5	.1517	0.84
Hot-rolled strip	8.5	8.3	.1069	0.56
Plates	2.6	4.8	.1740	0.85
Structural shapes	3.2	4.3	.3280	0.92
Cold-rolled strip	8.8	9.8	.0549	0.88
Cold-rolled sheets	5.8	5.0	.0963	1.14
Cold-finished bars	0.9	3.4	0.0964	0.83

Source: "Labor Department Examines Consumers' Prices of Steel Products," *Iron Age*, April 25, 1946; industry structure: 1938 capacity data from *Directory of Iron and Steel Works of the United States and Canada*; output: *Annual Statistical Report, American Iron and Steel Institute* (New York, 1938, 1942).

In general, the more concentrated the industry structure (measured by the Herfindahl index), the larger were the price reductions. Although there were no extreme departures from this relationship, structural shapes and hot-rolled strip had prices somewhat lower than the average relationship, and cold finished bars prices somewhat higher than expected, and the deviations are not accounted for by the level of demand (measured by 1939 sales relative to 1937 sales). The number of buyers could be taken into account, but the BLS study states:

"The extent of price concessions shown by this study is probably understated because certain very large consumers in the automobile and container industries were excluded from the survey. This omission was at the request of the OPA which contemplated obtaining this information in connection with other studies. Since a small percentage of steel consumers, including

these companies, accounts for a large percentage of steel purchased, prices paid by a relatively few large consumers have an important influence upon the entire steel price structure. Very large steel consumers get greater reductions from published prices than smaller consumers, often the result of competitive bidding by the mills for the large volume of steel involved. One very large steel consumer, a firm that purchased over 2 pct. of the total consumption of hot and cold-rolled sheets in 1940, refused to give purchase prices. This firm wished to protect its suppliers, fearing that "certain transactions might be revealed which would break confidence" with the steel mills. However, this company did furnish percent changes of prices paid for several steel products which showed that for some products prices advanced markedly, and in one case, nearly 50 pct. The great price advances for this company indicate that it was receiving much larger concessions than smaller buyers."<sup>15</sup>

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These various bits of evidence are fairly favorable to the theory, but they do not constitute strong support. More powerful tests will be feasible when the electrical equipment triple-damage suits are tried.<sup>16</sup> The great merit of our theory, in fact, is that it has numerous testable hypotheses, unlike the immortal theories that have been traditional in this area.

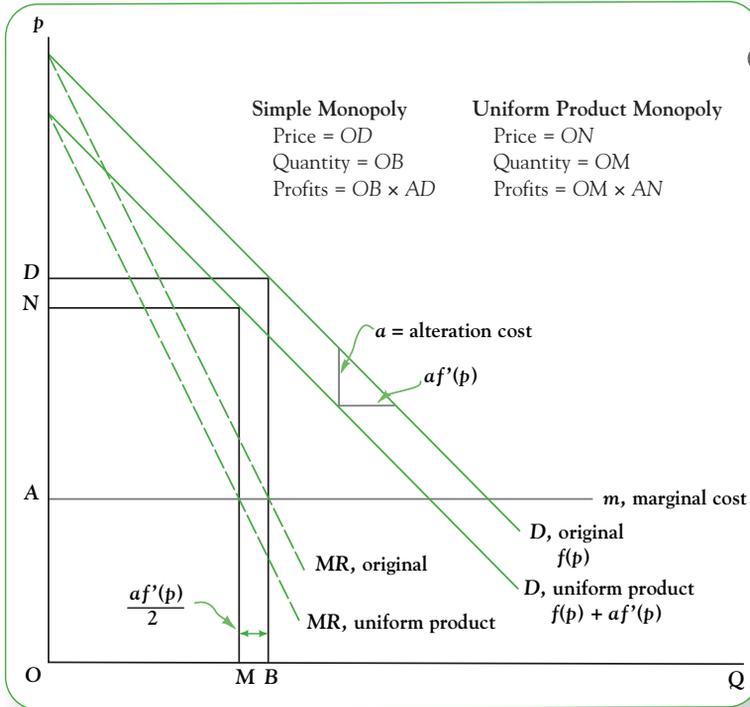
## Appendix

The importance of product heterogeneity for profit-maximizing behavior cannot well be established by an a priori argument. Nevertheless, the following simple exposition of the implications for profitability of disregarding heterogeneity may have some heuristic value. The analysis, it will be observed, is formally equivalent to that of the effects of an excise tax on a monopolist.

Assume that a monopolist makes men's suits, and that he makes only one size of suit. This is absurd behavior but the picture of the sadistic monopolist who disregards consumer desires has often made fugitive appearances in the literature so that problem has some interest of its own. The demand curve of a consumer for suits that fit,  $f(p)$ , would now be reduced because he would have to incur some alteration cost  $a$  in order to wear the suit. His effective demand would therefore decline to  $f(p + a)$ . Assume further that the marginal cost of suits is constant ( $m$ ), and that it would be the same if the monopolist were to make suits of various sizes.

The effect on profits of a uniform product—uniform is an especially appropriate word here—can be shown graphically.

Figure



The decrease in quantity sold, with a linear demand curve, is  $MB = 1/2af'(p)$ . The decrease in the price received by the monopolist is  $DN = \frac{MB}{f'(p)} - a = -\frac{a}{2}$ , so if  $\pi$  is profit per unit, and  $q$  is output, the relative decline in total profit is approximately  $\frac{\Delta\pi}{\pi} + \frac{\Delta q}{q}$ , or  $\frac{MB}{OB} + \frac{ND}{AD}$ . Since  $OB = \frac{f(m)}{2}$   $AD = \frac{p}{\eta}$ , where  $\eta$  is the elasticity of demand, the relative decline of profits with a uniform product is  $\frac{af'(p)}{f(m)} + \frac{a\eta}{2p} = \frac{a\eta}{2p} + \frac{a\eta}{2p} = \frac{a\eta}{p}$ .

The loss from imposed uniformity is therefore proportional to the ratio of alteration costs to price.

Our example is sufficiently unrealistic to make any quantitative estimate uninteresting. In general one would expect an upper limit to the ratio  $a/p$ , because it becomes cheaper to resort to other goods (customer tailoring in our example), or to abandon the attempt to find appropriate goods. The loss of profits of the monopolist will be proportional to the average value of  $a/p$ , and this will be smaller, the smaller the variation in buyers' circumstances.

Still, monopolists are lucky if their long-run demand curves have an elasticity only as large as  $-5$ , and then even a ratio of  $a$  to  $p$  if  $1/40$  will reduce their prof-

its by 12 per cent. The general conclusion I wish to draw is that a monopolist who does not cater to the diversities of his buyers' desires will suffer a substantial decline in his profits. ▼

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- 1 Unless one defines heterogeneity of transactions to include also differences in luck in finding low price sellers; see my "Economics of Information," *Journal of Political Economy*, June, 1961.
  - 2 If the firms are multiproduct, with different product structures, the diseconomies of merger are not strictly those of scale (in any output) but of firm size measured either absolutely or in terms of variety of products.
  - 3 If price is above marginal cost, marginal revenue will be only slightly less than price (and hence above marginal cost) for price cuts by this one seller.
  - 4 More precisely, he is moving along a demand curve which is a fixed share of the industry demand, and hence has the same elasticity as the industry curve at every price.
  - 5 When the relative outputs of the firms change, the minimum cost condition of equal marginal costs for all sellers is likely to be violated. Hence industry profits are not maximized.
  - 6 The literature and cases on "open-price associations" contain numerous references to the collection of prices from sellers (see Federal Trade Commission, *Open-Price Trade Associations* [Washington, 1929], and cases cited).
  - 7 This argument applies to size of buyer relative to the individual seller. One can also explain the absence of higgling [sic] in small transactions because of the costs of bargaining, but this latter argument turns on the absolute size of the typical transaction, not its size relative to the buyer.
  - 8 The problem implicitly raised by these remarks is why all sales to the government are not at collusive prices. Part of the answer is that the government is usually not a sufficiently large buyer of a commodity to remunerate the costs of collection.
  - 9 For example, take  $p = .95$ . The entry for 10 customers per seller is 13.8 in Table 2—this is the maximum percentage of average sales that can be obtained by price reductions to old customers. The corresponding entries in Table 1 are 6.9 (2 sellers, 20 buyers), 8.9 (3 and 30), 7.4 (4 and 40), 6.4 (5 and 50), 4.2 (10 and 100), etc. Multiplying each entry in Table 1 by  $(n_s - 1)$ , we get the maximum gain in sales (without detection) by attracting customers of rivals, and beyond 2 sellers the gains are larger by this latter route. Since Table 1 is based upon a 10 per cent probability level, strict comparability requires that we use  $1.6\sigma$ , instead of  $2\sigma$ , in table 2, which would reduce the entries by one-fifth.
  - 10 Unlike old customers, whose behavior is better studied in a round of transactions, the new customers are a flow whose magnitude depends more crucially on the time period considered. The annual flow of new customers is here taken (relative to the number of old customers) as the unit.
  - 11 And slowly with the number of sellers if customers per seller are held constant.
  - 12 A similar argument leads to a measure of concentration appropriate to potential price-cutting for old customers. Firm  $i$  will lose  $(1 - p)n_o s_i$  old customers, and firm  $j$  will gain  $(1 - p)n_o \frac{s_j s_i}{1 - s_i}$  of them, with a variance of  $(1 - p)n_o \frac{s_j s_i}{1 - s_i} \left(1 - \frac{s_j}{1 - s_i}\right)$ . If we sum over all  $i (\neq j)$ , we obtain the variance of firm  $j$ 's sales to old customers of rivals  $(1 - p)n_o s_j (1 + H - 2s_j)$ , to an approximation, and summing over all  $j$ , we have the concentration measure,  $(1 - p)n_o (1 - H)$ . The agreement of this measure with

that for new customers is superficial: that for new customers implicitly assumes pooling of information and that for old customers does not.

- 13 Of course, price itself usually falls somewhere in this range rather than at the pole. The traditional assumption of stationary conditions conceals this fact.
- 14 The concentration measures have a rank correlation of .903. The profitability measures have the following rank correlations:

	Return on All Assets	Ratio of Market to Book Value
Return on net worth	.866	.872
Ratio of market to book value	.733	—

- 15 See "Labor Department Examines Consumers' Prices of Steel Products," *op. cit.* p. 133.
- 16 For example, it will be possible to test the prediction that prices will be higher and less dispersed in sales on public bids than in privately negotiated sales, and the prediction that price-cutting increases as the number of buyers diminishes.