

**DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE**

**ROUNDTABLE ON EX OFFICIO CARTEL INVESTIGATIONS AND THE USE OF SCREENS TO
DETECT CARTELS**

-- Paper by William E. Kovacic --

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THE VALUE OF POLICY DIVERSIFICATION IN CARTEL DETECTION AND DETERRENCE

*Note by William E. Kovacic**

1. Introduction

1. No modern development in antitrust law is more striking than the global acceptance of a norm that condemns cartels as the market's most dangerous competitive vice.¹ As the 1990s began, only the United States and a few other jurisdictions actively challenged horizontal price-fixing, bid-rigging, and market allocations. By the decade's end, the exposure and prosecution of the worldwide lysine and vitamins cartels changed all of that.²

2. Today, a growing number of the world's competition systems treat cartels as serious offenses.³ Dramatic enhancements in detection and sanctions have fueled the expansion of enforcement.⁴ The most important step is the broad international adoption of the leniency reforms pioneered by the U.S. Department of Justice (DOJ) in the 1990s.⁵ As recounted in the *Background Note* prepared by the OECD

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¹ Modern anti-cartel enforcement trends are described in EUROPEAN COMPETITION LAW ANNUAL 2006: ENFORCEMENT OF THE PROHIBITION OF CARTELS (Claus Dieter Ehlermann & Isabela Atanasiu eds., 2007); Organization for Economic Cooperation & Development, *Cartels: Sanctions Against Individuals*, 9 Journal of Competition Law and Policy 7, 36-45 (2007).

² These and other major prosecutions are examined in John Connor, GLOBAL PRICE FIXING (2d edition, 2008).

³ See David E. Vann Jr. & Ellen L. Frye, *Overview*, in CARTEL REGULATION 3 (William Rowley & Martin Low eds. Jan. 2009) ("In the past decade, nearly every jurisdiction with general competition legislation has either enacted specific anti-cartel statutes, significantly enhanced the civil penalties for cartel violations, or added criminal sanctions for corporate executives who commit cartel violations. Indeed, in recent years regulators have been enforcing anti-cartel legislation with increased vigour, and have grown more sophisticated and savvy in their investigative and analytical techniques."); see also CRIMINALISING CARTELS (Caron Beaton-Wells & Ariel Ezrachi eds., 2011) (discussing expanded adoption of criminal punishment as an anti-cartel enforcement device).

⁴ On developments in detection methods and sanctions, see Gregory J. Werden, Scott D. Hammond & Belinda A. Barnett, *Deterrence and Detection of Cartels: Using All the Tools and Sanctions*, 56 Antitrust Bulletin 207 (Summer 2011).

⁵ The DOJ amnesty reforms of the 1990s are recounted in Gary R. Spratling, *Detection and Deterrence: Rewarding Informants for Reporting Violations*, 69 George Washington University Law Review 798 (2001).

Competition Committee Secretariat for this session,⁶ leniency is the chief tool by which competition agencies detect cartels today.

3. The Competition Committee delegates know the proxies often used to show the effectiveness of the modern anti-cartel initiatives. They have seen the graphs and bar-charts that show the ascent of total monetary recoveries and days served in prison.⁷ Amid these data emerge two persistent questions: is modern cartel enforcement attaining its deterrence goals, and what refinements can give competition agencies an edge in the ongoing contest between antitrust enforcers and cartelists that began nearly 125 years ago?⁸

4. This paper explains the value of a diversified approach for the detection of cartels and, more generally, for the design of a competition policy strategy to deter cartels. Part 2 places detection in the context of other factors that determine the willingness of companies to comply with the law. Part 3 identifies the obstacles to greater use of proactive screens set out in the *Background Note* and describes, in general terms, the value of greater diversification in detection methods. This section considers the implications for public policy of the dynamic interaction between advances in anti-cartel law enforcement and the adoption of countermeasures by those who would collude. The Part 4 concludes with suggestions how competition agencies can build a diversified strategy for cartel detection and deterrence.

2. Why Comply with the Law?

5. In a system of antitrust law, the likelihood of detection is one of several factors that determine whether firms will collude. The discussion below places detection tools in the context of other considerations that influence a business manager's decision about whether to conspire with rivals. Each of the six variables described below can be adjusted to weaken or strengthen the operation of a prohibition against cartels.

2.1. Substantive Scope of the Legal Command

6. Although competition laws differ in their scope of coverage, most forbid agreements among competitors to restrict output, set prices, or allocate territories or customers. There is a broad consensus among competition policy experts that agreements among direct rivals to set the terms on which they will do business usually pose severe social harm and rarely offer economic benefits. In many competition systems, such conduct is strongly or conclusively presumed to be illegal. A jurisdiction can increase the incentive to comply by restricting the range of defenses that will overcome a finding of liability.

2.2. Volume and Quality of Evidence Required to Prove Violations

7. As noted above, the tendency among competition law systems is to adopt powerful, or conclusive ("per se"), presumptions of illegality for cartel behavior. In the typical cartel prosecution, this approach focuses close attention on whether the alleged cartelists acted in concert or unilaterally. In a regime that

⁶ OECD, Directorate for Financial and Enterprise Affairs, Competition Committee, Background Note by the Secretariat: Roundtable on Ex Officio Cartel Investigations and the Use of Screens to Detect Cartels 8-11 (Oct. 16, 2013) (hereinafter *Background Note*).

⁷ For a representative presentation of these trends, see Scott Hammond & Ann O'Brien, *The Evolution of Cartel Enforcement over the Last Two Decades: The U.S. Perspective*, in Polish Office of Competition & Consumer Protection, CHANGES IN COMPETITION POLICY OVER THE LAST TWO DECADES 11 (Malgorzata Krasnodebska-Tomkiel ed., 2010).

⁸ In 2014, we reach the 125th anniversary of Canada's antitrust law, the first national competition statute.

precludes or severely limits consideration of justification evidence,⁹ the definition of concerted action and its application of the facts will determine the outcome.¹⁰ Competition law can take various approaches to defining what constitutes “agreement” for antitrust purposes.¹¹ A common focal point for judicial analysis and policy debates is the quantum of circumstantial evidence that sustains an inference of the existence of an illegal price-fixing conspiracy.¹² One way to expand the reach of the prohibition on cartels is to broaden the types of evidence are sufficient to support a finding of concerted action.

2.3. *Detection of Violations*

8. The enforcement of antitrust laws against horizontal collusion induces firms to conceal their illegal collaboration. As sanctions increase so do the incentives of firms to hide their misconduct. In general terms, a strengthening of enforcement – through more vigorous prosecution, more aggressive methods of detection, more powerful sanctions, or some combination of these methods – ordinarily will be met by counterstrategies on the part of businesses which desire to continue to realize the benefits of collusion. What ensues is the competition law equivalent of an arms race as enforcement agencies and cartel participants employ, respectively, ever more powerful enforcement techniques and defensive measures.

9. This is perhaps most evident in modern experience with criminal enforcement against cartels. The Justice Department’s leniency reforms of the 1990s sought to counteract the defensive measures of cartel participants by providing strong incentives for firms and individuals to reveal the existence of unlawful arrangements. As noted above, leniency provides the chief means by which DOJ and numerous other competition agencies today obtain evidence to prosecute cartels.

2.4 *Likelihood of Prosecution*

10. A forth variable is whether cartel behavior, once identified, will be prosecuted. This is principally a function of the capacity and priorities of the competition agency. In most countries, public agencies are the sole or principle means of antitrust law enforcement. The establishment of private rights of action tends to increase the likelihood that observed instances of misconduct will be challenged. As the probability of prosecution, through public or private lawsuits, increases, firms have greater incentives to comply with the law.

2.5. *Adjudication*

11. The successful prosecution of a cartel typically requires the government to persuade courts (either a court of first instance or a reviewing court in appeals) that the offense took place and warrants the application of sanctions. In some regimes, the judge is responsible for making various rulings on procedure and evidence that affect the disposition of the case. In other systems, appellate tribunals review the adequacy of competition agency’s factual findings and its application of the law. Judges may adjust their

⁹ Competition systems ordinarily will entertain arguments about characterization: did the behavior fall beyond the zone of conduct believed to be pernicious because, for example, the parties agree to set prices to facilitate a joint venture’s production of a new and otherwise unobtainable product?

¹⁰ In jurisdiction that treats cartels as per se offenses, the bell of illegality rings at the moment an agreement with a rival to set prices is reached without regard to the arrangement’s ultimate success in achieving its aims.

¹¹ See Louis Kaplow, *COMPETITION POLICY AND PRICE FIXING* 21-214 (2013).

¹² William E. Kovacic, Robert C. Marshall, Leslie M. Marx & Halbert L. White, *Plus Factors and Agreement in Antitrust Law*, 110 Michigan Law Review 393 (2011).

evaluation of the evidence and the application of the legal rule as sanctions for misconduct increase. Thus, as civil or criminal sanctions become more powerful, judges may demand stronger evidence to find liability or supervise punishments more closely. The quality and speed of the judicial process will affect company perceptions about whether an adjudication of claims of collusion will yield a finding of guilt.

2.6. *Sanctions*

12. The severity of sanctions is closely interrelated with other elements of the antitrust system.¹³ In contemplating a specific act, firms are likely to consider what punishments the legal process will impose if they are caught, prosecuted, and convicted. Raising sanctions not only raises the potential cost of collusion, but also can strengthen incentive to inform under a leniency mechanism. Greater potential punishments increase the gains from informing. Stronger sanctions also have side effects that can diminish their usefulness. Here the perception of judges about the appropriateness of sanctions can affect the interpretation and application of legal standards. As a rough rule of thumb, the movement from lower-powered sanctions to higher-powered sanctions is likely to generate pressures for adjudicatory tribunals take explicit or implicit steps to ensure that higher-powered sanctions are visited upon genuinely harmful conduct. These tribunals may well insist that the forbidden acts be well defined (to give affected parties clear notice of what conduct will trigger severe punishment) and pose, or seem likely to pose, serious dangers to society.

2.7. *Summary*

13. The factors described here – including detection – are interdependent. Adjustments in one element can affect the operation of another element or elements. Some elements can be envisioned as both substitutes and complements in an anti-cartel program. Detection mechanisms and sanctions are an example. In one sense detection techniques and sanctions are substitutes. A system can increase deterrence either by boosting detection rates (even with more modest sanctions) or increasing sanctions (even with more modest detection rates). As discussed earlier, they also are complements. More powerful sanctions can create stronger inducements under a leniency program for individual cartel members to inform against each other.

3. **Diversification of Detection Methods: Barriers and Justifications**

14. A central motivation for the *Roundtable on Ex Officio Cartel Investigations* is the concern that competition agencies rely excessively upon leniency to detect cartels.¹⁴ Should agencies more fully diversify their mix of detection methods by spending more resources on screen tools and other proactive techniques?

15. It is easy to see why the enforcement agencies – especially the architects of the modern leniency reforms -- would question moves to tamper with or subordinate a program that dramatically improved upon the detection state of the art. Why divert effort away from measures that, compared to the pre-reform era, have generated spectacularly greater remedies in order to support seemingly more speculative alternatives?

¹³ The severity of sanctions in an individual case is a function of the range of penalties specified in the antitrust statute and the range of discretion that an enforcement agency or court has to set the punishment in a specific case. See, e.g., Wouter P.J. Wils, *Antitrust Compliance Programmes and Optimal Antitrust Enforcement*, 1 *Journal of Antitrust Enforcement* 52 (2013) (discussing the role that company antitrust compliance programs might play in the determination of sanctions).

¹⁴ *Background Note*, at 4-5. For another perspective on the debate on this topic, see Symposium, *Cartel Penalties: Effective Deterrents or License Fees?*, 56 *Antitrust Bulletin* (Summer 2011).

This is an entirely fair point, yet one need not be a leniency skeptic to see value in some measure of greater diversification in detection methods.

3.1. Obstacles to Diversification in Detection Methods

16. The anxiety expressed by a number of enforcement officials about spending more resources on proactive screens stems from several sources beyond the perception that leniency, supplemented by existing proactive tools (e.g., programs to alert public procurement agencies to suspicious bidding patterns), is the best strategy for cartel detection. For several reasons, a reallocation of resources to proactive screens can seem to be an inferior investment of enforcement agency effort.

3.1.1. Memory of Expensive and Prominent Failures

17. Those of us who entered antitrust practice in the 1970s have strong memories of proactive screening efforts gone badly. From my vantage point as a junior case handler with the Federal Trade Commission (FTC) in the late 1970s, I watched a number of DOJ and FTC initiatives that sought to use proactive screens to identify cases suitable for prosecution on theories of express collusion or tacit coordination. In the late 1970s, DOJ committed substantial effort to use structural criteria to target Sherman Act cases in concentrated industries.¹⁵ Heralded as an important reorientation of DOJ enforcement policy, the screening program yielded no prosecutions. At the FTC I saw the development and demise of the agency's "shared monopoly" case against the four largest U.S. producers of ready-to-eat breakfast cereal. The case was chosen principally with structural criteria and was predicated on a theory (the maintenance of a noncompetitive market structure¹⁶) that joined up elements of express and tacit collusion. Dismissed after ten years of administrative proceedings before the FTC,¹⁷ the *Kellogg* case became a symbol of poor prosecutorial judgment.

18. There is no inevitability that proactive screening will lead to these dismal results. In hindsight, none of the initiatives mentioned above was well designed or managed. One would expect there to be an important degree of learning – not to repeat prior missteps and to benefit from advances in empirical and theoretical scholarship. At the same time, the impression left upon some observers by the U.S. experiences from the 1970s is that proactive screening is prone to diagnostic failures that get things expensively wrong.

3.1.2. Agency Leadership Incentives

19. Perceptions of the quality of competition agencies and their leaders often are based upon measurements of activity – the number of cases prosecuted and the amount of monetary penalties imposed. Journalists, scholars, and international organizations often use these and related forms of activity levels as a proxy for effectiveness and skill. An agency that turns out a higher level of cases and imposes a larger amount of monetary penalties is thought to be a better agency than an authority that does less.¹⁸ Nothing captures the attention of external observers more than imposing a fine with a large round number. For

¹⁵ See Marc Allen Eisner, ANTITRUST AND THE TRIUMPH OF ECONOMICS 148-49 (1991) (discussing DOJ structural screening efforts).

¹⁶ In re *Kellogg*, 99 F.T.C. 8, 11-16 (1982) (complaint alleging maintenance of a highly concentrated, noncompetitive market structure and shared monopolization).

¹⁷ *Kellogg*, 99 F.T.C. at 269 (dismissing complaint).

¹⁸ Of course, the tracking and reporting of activity levels also serves the purpose of demonstrating to external audiences (e.g., the business community and legislators who appropriate funds for agency operations) that the competition agency's commitment to enforce the law is credible.

many jurisdictions, leniency has become a production line that generates a volume of cases and fines that enhance the reputations of agencies and their leaders.

20. Given the proven ability of leniency to provide widely accepted, readily measurable indexes of quality, an agency and its leaders might well hesitate to invest resources in screening projects that seem to promise less reliable and substantial returns.¹⁹ Compared to reliance on leniency, the development of proactive screening capabilities might be seen as the equivalent of a riskier investment that will yield significant returns, if at all, over the longer term. Incumbent leadership may be reluctant to make investments that likely will yield returns after current leaders have left the agency. Not all government institutions have embraced a norm that emphasizes long-term institutional improvement and discourages the inclination to focus chiefly on measures that generate immediately appropriable results.²⁰ Antitrust policy successes in any one period often depend on contributions made by enforcement officials in an earlier period. In its drive to demonstrate discontinuities in enforcement, the pendulum narrative tends to obscure the degree to which policy in key areas of federal activity reflect the contributions of earlier periods.

3.1.3. *Special Challenges for Small and Poorly Funded Competition Authorities*

21. The decision to invest in what might appear (compared to reliance on leniency) to be higher risk detection techniques is difficult enough for an agency with relatively larger resources. The decision is especially daunting for a poorly funded institution, especially a newer authority attempting to gain a foothold amid unfavorable institutional surroundings. The strong preference for such agencies may be to adapt approaches that are simpler to implement and have a track record of demonstrated success. This is not to say that effective leniency programs are easy to carry out -- far from it. Rather, the demands associated with creating the internal analytical capability and assembling the information that proactive screening can require may strike newer, thinly funded agencies as foreboding.

3.2. *Antitrust Enforcement and the Dynamic Interaction of Agencies and Companies*

22. In light of the sampling of obstacles recited above, why would greater investment in proactive screening make sense? Perhaps the most important reason for greater diversification in detection methods appears in recent work by Robert Marshall and Leslie Marx on cartel formation and operation.²¹ Marshall and Marx underscore the adaptability and ingenuity of business managers in responding to ever more severe public enforcement campaigns against collusion. The authors emphasize a crucial point for enforcement policy: the gains from collusion create strong, enduring incentives for firms to devise countermeasures to blunt the impact of enforcement advances in detection and punishment. With illustrations from published cartel cases, Marshall and Marx document the evolution of increasingly sophisticated methods to overcome resistance by buyers, disguise true-ups, and punish deviations. Cartelization may pose difficult challenges, but the rewards for success provide strong inspiration to

¹⁹ For an examination of the motivations that guide program choices by regulatory agencies, see James C. Cooper & William E. Kovacic, *Behavioral Economics: Implications for Regulatory Behavior*, 41 *Journal of Regulatory Economics* 41 (2012).

²⁰ See Hugh Hecl, *The Spirit of Public Administration*, 35 *Political Science & Politics* 689, 691 (2002) (“Nothing closes so many doors on real opportunity as opportunism. A person who is forever weighing the odds of immediate success can never believe in anything long enough to make it succeed.”).

²¹ Marshall and Marx have written what I regard to be the best text written to date – in a field that includes many excellent works – on how cartels form and operate. Robert C. Marshall & Leslie Marx, *THE ECONOMICS OF COLLUSION* (2012).

surmount them.²² The two scholars use informative pedagogical narratives demonstrate that business managers will press to find means of coordination that are more likely to escape prosecution. Nobody should underestimate the creativity or skill of business managers in doing so. “Given the creativity and flexibility of successful cartels in crafting solutions to problems,” the authors write, “we expect changes to their operating environment to be greeted with quick and effective adjustments to the collusive structures.”²³

23. This observation suggests caution in assuming that any specific improvement in enforcement (e.g., leniency, incarceration for culpable individuals) will cause prospective cartel members to abandon the pursuit of illicit collusion and surrender. The history of interaction between antitrust enforcement and cartel participants is a testament to the ingenuity and determination of business managers in finding ways to counteract new advances in enforcement. One need not predicate exactly which forms the adaptation by businesses will take place to be confident that firms will strive to overcome modern prosecutorial innovations. The contest between enforcers and prospective cartel members is unlikely to ever be “over.” The inevitability of continued efforts to sidestep effective detection and prosecution by itself underscores the importance of continued efforts to anticipate leniency countermeasures (indeed, to consider how cartel participants may seek to turn leniency to their own advantage) and to invest, at least to some degree, in alternative detection techniques.

24. Dynamic adjustment by business managers can take other forms. Firms also will take steps beyond seeking to blunt the force of leniency and other modern reforms (such as the expansion of criminal enforcement). The success of enhanced detection measures or remedies may cause business managers to consider other approaches to achieving a restriction of output that yields price increases. For example, firms may choose to spend more resources to obtain through public policy the types of output restraints that would be forbidden through private collective action. Firms may invest greater sums to persuade legislatures or other government bodies to enact measures (e.g., laws that limit entry) to achieve the results that a private collusive output restriction might yield.²⁴

4. A Broader View of Cartel Detection and Deterrence

25. Decisions about how to spend resources on enhanced cartel detection should be taken with the full menu of possibilities in mind. The question to be answered for any single jurisdiction is how the return on an investment in one initiative is likely to compare with investments in other initiatives on the menu.

4.1. The Larger Context

26. A competition agency can do a number of things to improve the effectiveness of its anti-cartel program. Some of these appear in the list of actors examined above in Section 2. Possible adjustments can involve the following steps:

²² Marshall and Marx acknowledge all of the cartel coordination difficulties identified by George Stigler in his article on oligopolistic coordination. George J. Stigler, *A Theory of Oligopoly*, 32 *Journal of Political Economy* 44 (1964). They observe that when the financial prizes from cartelization are substantial, firms have significant incentives to overcome these difficulties, and they will exert themselves arduously to do so.

²³ *Economics of Collusion* at 138.

²⁴ On the attractiveness of publicly imposed output restrictions as substitutes for private cartels, see James C. Cooper & William E. Kovacic, *U.S. Convergence with International Competition Norms: Antitrust Law and Public Restraints on Competition*, 90 *Boston Univ. L. Rev.* 1556, 1561-62 (2010).

- *Legal Standard.* If existing law treats collusion under a rule of reason, the authority can seek amendments that would establish a strong or conclusive presumption of illegality.
- *Relevant Proof of Agreement.* The agency can build a case, based on empirical study and theory, to broaden the range of evidence that is considered to be proof of concerted action.
- *Detection.* The agency can invest in stronger detection, including enhancements to leniency programs, payments (beyond the reduction in monetary fines or criminal punishment) to individuals who inform agencies of cartel behavior, and investments in proactive screens.
- *Prosecution.* A jurisdiction can increase the likelihood that offenses will be prosecuted by enhancing the capabilities of the public competition agency or establishing private rights of action.
- *Adjudication.* Improvements in the capacity of judges and, more generally, in the administration of justice may be valuable in ensuring that courts diagnose challenged behavior accurately and dispose of matters in a timely manner.
- *Sanctions.* The deterrent power of a system also can be increased by raising the costs to violators for infringements. This can be achieved by strengthening punishments available to public authorities or by enhancing private rights of action for cartel victims.

27. All of these measures are related to the exercise of the agency's prosecutorial authority. The decision about how to spend resources also should take into account other investments that affect the creation and operation of collusive schemes. An important category of possible agency activity consists of investments in advocacy to adjust public policies that facilitate collusion by unnecessarily suppressing market entry or expansion. Compared to other investments, an agency might achieve the greatest improvement in an anti-cartel program by persuading legislators or government agencies to abandon restrictions in the public procurement system that artificially limit participation in public tenders or otherwise reinforce supplier coordination.²⁵

4.2. Enhancements in Proactive Screening

28. The dynamic reaction of prospective cartel members to individual improvements in detection mechanisms provides convincing reason to distrust the proposition that any single measure (such as leniency), however impressive it might appear to be for the moment, will solve the cartel problem. Diversification in prosecutorial effort provides important insurance against the possibility that cartel members will circumvent individual detection devices or turn specific prosecutorial techniques to their advantage. For this reason, competition agencies as a whole would do well to make additional investments in other detection techniques.

29. The papers by Rosa Abrantes-Metz and Maarten Pieter Schinkel have set out a number of possibilities for expanded proactive screening. Here I offer some suggestions about how these or other measures might best be applied.

²⁵ Some of these possibilities are described in Robert D. Anderson & William E. Kovacic, *Competition Policy and International Trade Liberalisation: Essential Complements to Ensure Good Performance in Public Procurement Markets*, 19 Public Procurement Law Review 67 (2009).

30. Well-established, better-funded competition agencies are likely to be the vehicles for testing and implementing advanced screening devices. Without specifying a precise level of outlays, it is desirable that such agencies continue to include an element in their budgets to study possible approaches and to implement prototypes. These initiatives can profit from partnerships with academic institutions with analytical and research capabilities in competition economics and law. Individual initiative might be augmented with collaborative research projects that join up two or more agencies in examining and applying specific techniques. This form of collective effort would seem to be a valuable frontier for cooperation across borders.

31. Less well-funded competition agencies would be the beneficiaries of experimentation and testing by well-established and wealthier authorities. In this context, as well, the adaptation and implementation of advanced techniques is likely to benefit from inter-agency cooperation – including regional approaches that link individual authorities in common research and policy development.

32. A valuable source of insight into the design of screening methods is likely to come from a fuller, more systematic examination of past cartel cases. This is another respect in which Professors Marshall and Marx have pointed the way to improvements in anti-cartel policy. In *Economics of Collusion*, Marshall and Marx used a careful review of publicly available records involving cartel prosecutions (especially the published cartel decisions of the European Commission) to analyze what cartels must do to succeed. Marshall and Marx portray cartels as two-stage mechanisms whose effectiveness often requires the application of collusive *and* exclusionary tactics.²⁶ In the first stage participants reach a consensus about how they will restrict output or, in the case of a bidding ring, depress the price to be offered at an auction. In an important contribution to the literature, Marshall and Marx illuminate what happens next. Not only must the cartel cope with cheating and defections within its own ranks, it must neutralize challenges posed by entrants, suppliers, customers, substitute products, and rivals which chose not to join the conspiracy. Marshall and Marx adapt Michael Porter’s “five forces” model to identify the external threats to the cartel and to examine how successful cartels cope with them.²⁷ In many instances, cartels address stage-two threats with exclusionary tactics that individual dominant firms use to chasten rivals. Among other means of exclusion, cartels engage in predatory pricing, file vexatious patent infringement suits, form exclusive dealing contracts with upstream suppliers, and take advantage of public policies (such as anti-dumping statutes and environmental regulations that raise costs for new firms but grandfather existing production facilities²⁸) that suppress entry.²⁹ By analyzing cartels as two-stage mechanisms, Marshall and Marx show how successful collusion often requires recourse to exclusionary behavior, as well.

33. Marshall and Marx also identify and explain the structures needed by a cartel to avert cheating by members, and the consequent trail of economic circumstantial evidence that is left in their wake.³⁰ Pricing, allocation, and enforcement structures are all needed for collusion to be profitable, but each implies a conduct or outcome that can lead to the inference of collusion. The two scholars provide a framework for assessing the relative strength of this economic circumstantial evidence for inferring collusion. Specifically, Marshall and Marx propose a reformulation of the assessment of “plus factors” as tools to

²⁶ *Economics of Collusion*, 105-59.

²⁷ Michael E. Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors* (Free Press 1980).

²⁸ *Economics of Collusion*, 154-55.

²⁹ Marshall and Marx suggest that anti-dumping filings may be a promising area for examination as part of an anti-cartel program.

³⁰ *Economics of Collusion*, 104-42. 186-98.

distinguish concerted action from unilateral behavior.³¹ They identify a category of “super plus factors” entitled to special weight based upon their importance to the operation of a cartel. These include certain forms of price announcements, internal shifts in sales for incentive mechanisms, and inter-firm transfers.

34. Extensions of these lines of research promise to be helpful in identifying suspicious activity that could provide focal points for proactive screening and might warrant closer examination by competition agencies. The research program suggested here can be one element of agency work to conduct ex post assessments of law enforcement programs.

³¹ *Economcs of Collusion*, 213-55.