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

-- Paper by Maarten Pieter Schinkel --

*The note by the Secretariat is submitted FOR REFERENCE under item X of the forthcoming Competition Committee meeting to be held on 30-31 October 2013.*

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## **BALANCING PROACTIVE AND REACTIVE CARTEL DETECTION TOOLS: SOME OBSERVATIONS**

*Note by Dr. Maarten Pieter Schinkel\**

1. It is insightful to understand cartel law enforcement as a game of cat & mouse between competition authorities in constant pursuit of collusion and cartels trying to escape capture. Of course there are examples of found-out cartels, in which some well-intending division head, at a benign trade association meeting over industry safety standards, happened to find himself regrettably in talks over prices at the drink. His lawyers will surely have emphasized their client's ignorance. Yet, there is no reason to think that large corporations and their management, with in-house counsel, compliance programs, internal monitoring, and regular mandatory risk statements, would not be professional about antitrust. They will know the competition rules, understand the gains from pushing their boundaries, possibly occasionally overstepping those where they believe to be able to get away with it, while continuously gauging the information, likely views and activities of the relevant agencies that oversee them.

2. More formally, cartel law enforcement is a subclass of market oversight games.<sup>1</sup> These are strategic situations in which the success of the choices made by the institutions burdened with the task to oversee markets depends on the choices of the market participants that they are overseeing, and vice versa. Market oversight games are not unique to competition authorities: also regulators and supervisors such as central banks are involved in them. They are complex and require creative play to do well in them.

3. Market oversight games are games of pursuit and evasion. To see what these are, consider Pac-Man, the cult-classic video game, as an illustration of how to play such games. Pac-Man was first released as an arcade game in 1980, yet it is still popular today on iPhone. You will probably have played it. It is also the fruit-fly of artificial intelligence research. Properly understood, Pac-Man is an international cartel, manoeuvring a market with the objective to eat away at consumer surplus – the so-called 'pac dots' – and the occasional windfall profit – 'fruits'. While doing so, the market is being overseen by no less than four different competition authorities – also known as 'ghosts'. When the cartel runs into one of these agencies, it is busted and loses a life. At first, the agencies appear to roam the economy in a somewhat uncoordinated manner, but at higher levels, you soon realize that they employ different tracking techniques and even seem to coordinate their hunt for the cartel to some extent.

4. The key to winning in Pac-Man, being Pac-Man, is for the player to understand the behaviour of the ghosts and manipulate them accordingly. The ghosts in the game follow relatively simple pre-programmed rules of engagement. Each ghost chases Pac-Man by moving towards a position that is related

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<sup>1</sup> See Schinkel, M.P., *Market Oversight Games*, Amsterdam University Press, 2011.

to where Pac-Man last was, in four different ways – giving each ghost somewhat of a character. When you know those rules by which the ghosts are told where to go, it is easy to foresee the next move of each of them and avoid them all. We know this from explanations of how to win by the World Champion Pac-Man.

5. So the ghosts are too predictable to catch a professional Pac-Man. What they should do instead of following their fixed routines is outsmart Pac-Man by occasionally behaving unpredictably, so that they can no longer be easily manipulated. Elsewhere, I have argued how in competition policy the Microsoft, MasterCard and Google cases are examples of such strong agency play.<sup>2</sup> But the analogy to Pac-Man applies straightforwardly also to the balancing of proactive and reactive cartel detection tools. From this market oversight games perspective, therefore, I prepared a few remarks on the subject of the roundtable, which go a little beyond even the excellent Background Note circulated by the Secretariat.

6. My first set of remarks concern the reactive leniency programs and how they may likely have seen their best days in more advanced jurisdictions, implying that it is time so supplement them with proactive screening. My second set of remarks is about how screening for collusion needs to be done with constantly changing and innovative tests, so that it remains hard to evade them. What the optimal balance between proactive and reactive cartel detection methods is will differ between agencies, depending on the expected level of sophistication of the cartels active in their jurisdictions, of which the agency should try to stay at least one step ahead.

7. Let me begin with the observation that it is quite remarkable that many of the country contributions submitted start with priding the national leniency program and setting out extensively how it is a rich source of new cartel cases for the agency. Although quite a few countries have a more critical attitude towards leniency now than there was just a few years back, still screening seems to come only as a distant second to most. It is as if the majority of agencies see leniency as the better substitute for screening. This majority also includes agencies with very mature competition law enforcement systems – that so likely face quite advanced cartel populations as well – such as the US Department of Justice and the European Commission.

8. While this is understandable from the point of view of the many cases that the leniency programs brought in over the years, it is important to note that leniency and screening are not substitutes: they are complements. For even if a leniency application is the true lead in a case – more below about why they often likely are not – the application will have come in the door really only because the applicant felt a sufficiently large risk of the cartel it participates in being found out by the agency otherwise. After all, applying for leniency is not free for the applicant – certainly not in jurisdictions with a well-developed follow-on private damages practice. Active independent cartel detection, in other words, is a necessary condition for the leniency programs to work well. So if indeed you like your leniency program, make sure to screen!

9. There are, however, several reasons to be cautious about leaning heavily on leniency for the detection of collusion:

10. First, while, from publicly available information, amnesty and leniency discounts were given in the vast majority, at least of US and EU, cartel cases in the last 20 or so years, it is not clear what percentage of these cases was truly initiated by a leniency application – in the sense that the agency had no suspicion about collusion in the industry whatsoever before. After all, it is a known tactic to try to solicit a leniency application to substantiate a complaint or otherwise raised existing suspicion, even when the investigation could have started without such an application. Also, certainly in Europe where a menu of

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<sup>2</sup> See Schinkel (2011).

discounts is available, there is ability and incentive with agencies to offer fine reductions under the leniency programs for cooperation in investigations that had already started or were on-going. We cannot, therefore, take the sheer number of cartel decisions and convictions stating that leniency was involved as an indicator of the programs' success in discovering cartels. While leniency likely was instrumental in prosecuting these cases successfully, in many it may not have been the source of the case.<sup>3</sup>

11. Second, of the cases that were truly discovered by a leniency application, it is not obvious what the type and quality is of these cartels, relative to the population of all cartels operational in our economies. Out of the heterogeneous pool of different kinds of cartels undiscovered, what type of cartel is typically brought up by a leniency application? There is reason to think that those are not the most sophisticated cartels, but rather the less well-organized ones. Or old-and-dying cartels that lost most of their profitability and so their stability. Or even long dead cartels, whose skeleton came falling out of a closet during a due diligence inspection in a take-over context, for example. In fact, sophisticated active cartels, certainly those that formed with the leniency programs being a reality – say in the last 20 years – can only exist because they found ways in which to avoid being destabilized by the lure of leniency. Their members must have found ways to tie themselves to the mast to be leniency-resistant, or they would not have formed. A literature on this leniency-proofing is only emerging, but it has been suggested that it could be done for example by putting up default collateral that falls to the non-applicants, or applying bid rotation schemes, possibly combined with passing on key evidence, to rotate a combined largest incentive to apply with the lowest ability to do so.

12. This view suggests that, after the initial high yield of leniency applications that we have seen upon the introductions – and/or revisions – of the programs, their numbers would be tailing off. Indeed could the patterns of applications – with the difficulty of identifying true leniency discoveries pointed out, and also deterrence effects changing the underlying cartel population – be interpreted as supporting this hypothesis. Apparently, in some jurisdictions already there is concern that the numbers of leniency applications are getting fewer.<sup>4</sup> The leniency programs were a success in shacking out the least stable cartels when they came as a exogenous shock to the cartel pool at their introductions – and possibly again after some of the revisions – but they have long been endogenized by cartels.

13. Third, when agency resources are limited, it is doubtful whether they should be spend mostly on bringing these tail-end leniency cartels, since it means that other cartels, in particular more sophisticated and profitable ones – that therefore typically also are more damaging – cannot be pursued, that is, cannot be discovered, and in some cases also cannot be investigated when a suspicion does exist. Indeed in practice resources are likely spend primarily on leniency applications. In fact, the leniency-programs can easily over-burden an agency – I think that at some point the existence of waiting lists of leniency-applications to consider explains at least some of the hesitation about screening. Also, there is a natural tendency, when there is a choice between pursuing an own-initiative case, involving hard and risky fieldwork in gathering the evidence, or a leniency case, in which the evidence is all delivered to the agency by the applicant's lawyers, officials may chose the leniency case more often than would be efficient from the point of view of overall agency effectiveness. This adverse selection can decrease the probability of detection for active stable cartels.

14. Fourth, sophisticated cartels will know the effects pointed out, and act accordingly. It is a little hard still to see still how hard core cartels may keep their local agency busy with the occasional small

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<sup>3</sup> Consistent analysis of the true leads of cartel cases would be a very valuable tool to assess the true effectiveness of leniency programs, but to my knowledge is not publicly available.

<sup>4</sup> Henk Don of the Board of Directions of the Dutch Authority Consumers and Markets (ACM) stated this for the Netherlands in an interview on 14 November 2012. Here also, Systematic research is required.

leniency cases, while reaping the benefits of serious collusion hidden elsewhere – although in the context of diversified international conglomerates it is not unthinkable.<sup>5</sup> Yet, it would make sense as a cartel strategy – depending on how sophisticated the agency is in seeing through such a ‘throwing-a-bone’ strategy. Active cartels will surely try to monitor the competition authority’s priorities and agenda, and try to assess their work-load. These are parameters in their assessment of the likelihood of being detected independently, a probability that will surely decrease in the expected size of the back-log of leniency applications.

15. Fifth, proactive detection, both private and public, may be crowded out by too much emphasis on the importance of leniency programs. The European Commission’s efforts to shield leniency material from cartel victims seeking reparation of their damages, for example, may well help cartels escaping punishment – by possibly making it harder to quantify the cartel damages claim against a convicted cartel, but also because it hampers an additional channel of cartel detection by interested private parties.<sup>6</sup> Another effect may have been that in a recent case before a French court, the standard of proof for surprise inspections was almost raised effectively to the level of a leniency application.<sup>7</sup> The Paris Court of Appeal was initially convinced that smoking gun evidence obtained in a dawn raid was inadmissible, because there would have been insufficient evidence to allow the raid, such as a leniency application would have been, in the first place. The judgment was later overturned by the Court de Cassation and the authorization in review confirmed, or the incentive to apply for leniency would have been drastically reduced – since no dawn raid would need to be feared without one. This way, the fish may steal the bate!

16. So competition law enforcement agencies, certainly those that face sophisticated cartels, need to get over leniency and look seriously at supplementing it with methods to detect cartels by proactive screening, if they want to stay ahead of their market oversight games. However, screening too is subject to gaming.

17. Let me first clarify, if was not clear yet, that by screening for cartels I mean using econometric techniques to establish patterns in data that are suspicious of collusive behaviour and may warrant further investigation – such as by surprise inspections. Screening in this definition therefore generates “leads”. It is not itself aimed, or not primarily, at establishing evidence of the kind that alone would be sufficient for a cartel conviction.<sup>8</sup> Instead it is the source of suspicion that, when sufficiently strong, may be followed up with to further investigations to obtain such evidence. Screening, in this view, is an instrument to help setting priorities and to direct resources. It is for this reason that screening is a particularly fruitful activity

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<sup>5</sup> This is another area where more research is needed.

<sup>6</sup> See the European Commission’s legislative initiative on antitrust damages actions: <http://ec.europa.eu/competition/antitrust/actionsdamages/documents.html> An important consequence is, I think, that the European Commission should be more selective when deciding which evidence it would accept as part of leniency material that will be undisclosed to claimants, and which evidence it would not.

<sup>7</sup> The dawn raid was on the premises of the media group Amaury, in relation to the behaviour of one of its subsidiaries, L’Equipe, the only daily sport paper in France. For the second ruling by the Court of Appeal, see [https://groupes.renater.fr/sympa/d\\_read/creda-concurrence/CaP/31aout2012/ord.visiteAmaury.pdf](https://groupes.renater.fr/sympa/d_read/creda-concurrence/CaP/31aout2012/ord.visiteAmaury.pdf).

<sup>8</sup> It is important to note here that this conception of screens also implies that finding no red flag on a cartel screen does not conclusively mean that there was no cartel in the industry screened. Different cartels leave different tell-tale signs of their type of collusion. If a type of flag is not left by a particular form of collusion, not finding it with a screen that tests for that type of flag does not mean there was no cartel. Or to put it differently, there are twenty or more ways to kill someone; not finding a gun on the body does not mean it was no murder. The defensive use of cartel screens therefore is fundamentally different from the offensive use.

for competition authorities – as opposed to private parties – since they have other investigative powers to steer.

18. It is important to be clear about this definition, since in the past, opponents of the use of screens have argued that screening would not be useful because its findings would not stand as evidence in court – for example because many patterns that could be suspicious of collusion could also be explained in perfectly competitive ways, for example as parallel pricing. While this last and very true observation implies that great care has to be taken when intending to commit funds to further inspection on the basis of screen leads, it does not at all disqualify screening for leads. Allegedly Scott Hammond dismissed the use of screens with the statement: “You cannot catch a thief with an economist.” I would respectfully argue the opposite is true: when there has been theft is by sophisticated collusion, typically only a good economist can tell.

19. In fact, the US Department of Justice itself calls upon quite advanced econometric skills of its citizens in its flyer *Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For*.<sup>9</sup> To detect bid rigging, price fixing or other types of collusion, the DOJ advises Americans, amongst other things, to look out for companies that “appear to be bidding substantially higher on some bids than on other bids, with no apparent cost differences to account for the disparity”, and for when “bid prices drop whenever a new of infrequent bidder submits a bid.” Suspect also are “identical prices, especially when ... prices previously where different, and price increases do not appear to be supported by increased costs.” While these are excellent advises, do note how much quite advanced economic analysis is required to follow them well – in particular identifying cost differences across suppliers or over time is notoriously hard, as we know from the industrial organization literature.

20. In addition, these economics skills will need to be constantly updated – and this in particular is why the economist must be good. After all, pursuits by screens to detect tell-tale signs of collusion are subject to evasion. This can be illustrated clearly by one the most basic screens, a simple higher-mean-lower-variance test on a time-series of unit prices. From the well-known lysine cartel, in hindsight, it was noted that directly after the cartel formed – at the vertical line – prices went up drastically over short period of time, and displayed much less fluctuation afterwards – in the oval – than they had done before: prices were truly ‘fixed’, it seems. The pattern is both in prices in the US (blue) and Europe (pink). A simple mean-variance test could look for such patterns over time: a sudden increase in the mean price, followed by a decrease in the variance. Now suppose indeed that competition authorities would employ such a mean-variance test to screen for cartels in other markets. If a cartel would suspect that the agency would apply this test, it can easily avoid being detected in this way. All it would need to do is increase the price somewhat more gradually, so it does not qualify as a break, and keep up the variance in collusive prices to a level comparable to that under competition. The latter the cartel can do simply by fixing the collusive margin on production costs, instead of the absolute price level.

21. Hence, to be effective, tests for collusion should not be easy to dodge. For that, it helps if not too much is publicly known about the workings of these tests. The fact that many of these screens are also available to the business community, for application in compliance programs, for example, can assist a company with bad intentions in avoiding detection by public authorities.<sup>10</sup> But more importantly do

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<sup>9</sup> Available at: <http://www.justice.gov/atr/public/guidelines/211578.htm>

<sup>10</sup> Interestingly enough, a private practice applying screens in cartel detection may develop as well – a form of cartel bounty hunting, for example directed at substantiating complaints by rivals or customers, or facilitating private damages litigation. Such a practice may actually advance the development of sophisticated screens for collusion. However, as noted in the text, since private parties typically have much weaker investigative powers than competition authorities, they would likely require tests that allow for stronger conclusions, i.e. evidence, than just heightened suspicion.

screens need to be updated for new tell-tale signs of collusion, including those that would be displayed by cartels that are evading the older and simpler screens. It is obvious that only specialists in cartel behaviour, typically economists, will be able to do this. And only when they are good in the sense of clever, creative, and one step ahead of the cartels, looking for ever changing tell-tale signs of collusion in this high-stakes game of hide-and-seek.

22. Note in this respect that of the two categories of cartel screens usually distinguished, structural tests and behavioural tests, the latter seems the more promising one. A first remark is that the structural characteristics of markets that have been colluded in the past need not be informative about where cartels are in general. After all, as discussed before, the sample of cartel caught in the past is likely selective, and need not be representative of the total population of active cartels. Therefore, looking for cartels in markets with similar structural characteristics carries the risk of looking for your keys where the light is, rather than where you likely lost them. Moreover, firms knowing that markets with specific structural characteristics are watched will avoid colluding there, while firms in other markets may feel quite confident that they can escape suspicion. Behavioural screens can be set up as wider nets. In addition, and partly as a result of this, carrying out a dawn raid just based on structural characteristics of the industry seems to have a larger margin of error than based on suspicious behavioural patterns. Collusion is a behavioural violation of the competition rules, ultimately with the aim to raise prices, thus leaving behavioural traces.

23. We seem only at the beginning of what in essence is an arms race in screening to pursue collusion and dodging to avoid detection. The finding of cartel cases requires a mixture of enforcement methods, as leniency remains a complement to active detection. Agencies should apply a cost-benefit approach to determine what methods are most promising in catching the most damaging cartels in their jurisdiction. Awareness of the expected level of sophistication of the cartels they face is key in that decision. If it can reasonably be expected that most cartels in the area are unsophisticated, a simple scare by sending out leniency flyers may be a very cost-effective way to bring many of them in, including the major cartels. Yet, with the level of sophistication of the less benign part of their business community, that of the competition authority will need to rise too. Leniency becomes less effective and proactive detection methods a necessary tool in the enforcement arsenal. Other types of agencies, such as fraud and tax authorities, have long had automated and updated methods in place to monitor their overseen, and so channel their enforcement efforts. In light of the damage we know cartels continue to do in society, also in jurisdictions with mature enforcement systems, public resources spend on screens for proactive cartel detection appear to be well spent.

25. Let me conclude with how I would envision cartel detection would be done in a top-agency in the future. I picture a small but intelligent and driven group of professionals, with a suspicious mind, who know what to look for, combining their skills in a joint effort to discover unknown instances and forms of collusion. These specialists would spend most of their time monitoring various sources – such as the professional trade press, industry journals, tips and complaints, and also high-tech econometric screens running on various computers in their detection room. Looking at big data on multiple screens, combining possible red flags on those with other leads, so when, in their professional judgement, they see several tell-tale signs pointing in the same direction, they pass on a lead for possible further inspection.

26. It is really not that advanced to think about cartel detection in this way. Consider MUSE, for Multi-Unit Spectroscopic Explorer – essentially a very sophisticated telescope.<sup>11</sup> It is the latest detecting tool from ESO, the European Southern Observatory, produced in Lyon, France – and just delivered for operation in Chile. It is developed to screen for new young star systems in the universe – but surely will keep an eye open for possible life forms, who knows, out there too. It is highly complex, combining 24

<sup>11</sup> See <http://www.eso.org/sci/facilities/develop/instruments/muse.html>.

deep cooled camera's, whose panoramic images in a large simultaneous spectral range, are fine-tuned with highly sensitive software before being presented to astronomers around the world to scout out the sky. ESO proudly says it is "a unique and powerful tool for discovering objects that cannot be found in imaging surveys." I don't see why you would not have something looking like this – or at least this kind of investment in technology – behind the cartel detection room in your agency in the near future – to monitor your economies life for cartel anomalies. Actually, likely you need something a little bit more sophisticated than this even, since presumably unknown young star systems make no deliberate effort to escape being detected by earthly observatories.