



POLICY ROUNDTABLES

Ex officio cartel investigations and the use of screens to detect cartels

2013

Introduction

The OECD Competition Committee debated *Ex officio* cartel investigations and the use of screens to detect cartels in October 2013. This document includes an executive summary of that debate and the documents from the meeting: a Secretariat background note by A. Capobianco and Y. Cwikel, written submissions by Australia, Bulgaria, Canada, Chile, Estonia, the European Union, Hungary, India, Israel, Italy, Japan, Korea, Latvia, Lithuania, Mexico, Peru, Poland, the Russian Federation, Sweden, Chinese Taipei, Turkey, Ukraine, the United Kingdom, the United States, BIAC as well as an aide-memoire of the discussion, and three notes by panellists R.M. Abrantes-Metz, W.E. Kovacic and M.P. Schinkel.

Overview

Amnesty/leniency programmes continue to be the most effective cartel detection measure. However, over-reliance on amnesty/leniency programmes may undermine the very effectiveness of leniency programmes, as it may undermine the likelihood that cartel conduct can be detected outside the leniency program. A combination of tools that could include both pro-active and reactive detection measures is viewed to be most effective.

Pro-active detection includes the use of screens. There are two general screening approaches: i) a structural approach, which includes the analysis of structural and product characteristics of a specific market or industry that make successful collusive strategies more likely; and ii) a behavioural approach, which includes the identification through screening of firms' behaviour or market outcomes that may be the outcome by a collusive strategy. A combination of structural and behavioural screens is the most effective approach to cartel screening.

Screens, however, can provide false positive or false negatives or fail to distinguish between explicit and tacit collusion. They can be resource and data intensive, and cartelists may be able to adjust their behaviour to the screening technique in order to evade detection.

Related Topics

Improving International Co-operation in Cartel Investigations (2012)
Crisis Cartels (2011)
Prosecuting Cartels without Direct Evidence of Agreement (2006)
OECD Recommendation concerning Effective Action against Hard Core Cartels (1998)

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COMPETITION COMMITTEE**

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

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FOREWORD

This document comprises proceedings in the original languages of a roundtable on *Ex officio* Cartel Investigations and the Use of Screens to Detect Cartels held by the Competition Committee in October 2013.

It is published under the responsibility of the Secretary General of the OECD to bring information on this topic to the attention of a wider audience.

This compilation is one of a series of publications entitled "Competition Policy Roundtables".

PRÉFACE

Ce document rassemble la documentation dans la langue d'origine dans laquelle elle a été soumise, relative à une table ronde sur les enquêtes d'office sur les ententes et l'utilisation de dispositifs de filtrage pour détecter les ententes qui s'est tenue en octobre 2013 dans le cadre du Comité de la concurrence.

Il est publié sous la responsabilité du Secrétaire général de l'OCDE, afin de porter à la connaissance d'un large public les éléments d'information qui ont été réunis à cette occasion.

Cette compilation fait partie de la série intitulée "Les tables rondes sur la politique de la concurrence".

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EXECUTIVE SUMMARY

*By the Secretariat **

Considering the Secretariat Background Paper, the written contributions and the discussion at the roundtable on “*Ex officio cartel investigations and the use of screens to detect cartels*”, the following main points emerge:

- (1) *Amnesty/leniency programmes continue to be the most effective cartel detection measure. Many competition authorities rely extensively on a leniency program to detect and investigate cartels, recognising that such programs have a high successful detection rate and provide strong evidence on the existence and functioning of the cartel. However, over-reliance on amnesty/leniency programmes may undermine the very effectiveness of leniency programmes, as it may undermine the likelihood that cartel conduct can be detected outside the leniency program. A combination of tools that could include both pro-active and reactive detection measures is viewed to be most effective.*

Amnesty/leniency programmes are widely used by competition agencies with important results in the terms of the number of cartels detected. Amnesty/leniency programmes rely on the incentives that businesses have to bring an undetected cartel to the agency’s attention in exchange for amnesty or for a more lenient approach when it comes to setting the fine. These incentives rest on the perceived probability that the cartel will be detected by the authority and be punished severely. It follows that if competition agencies can somehow increase the probability of detecting cartels, they may be able to induce more amnesty/leniency applications. Amnesty/leniency programmes not only unveil cartels but they also allow the agency to access evidence that they might not otherwise have through the more traditional investigative tools. In this sense, amnesty/leniency policies enhance both detection and prosecution of cartels and increase the level of cartel desistance and deterrence.

Despite the general success of amnesty/leniency programmes around the world, the roundtable indicated that an over-reliance or an exclusive reliance on these programs may raise some policy concerns. This is because in certain circumstances, leniency programs may not be as effective as expected. For example, theoretical work has suggested that amnesty/leniency programmes do not detect sophisticated and profitable cartels but cartels that are no longer successful or stable and are about to collapse. According to this work, amnesty/leniency programs tend to detect cartels in a limited number of industries, and not across the economy as a whole. Finally, in small economies incentives to apply for amnesty or leniency are weaker as the risk of commercial retaliation against the leniency applicant is significantly higher in markets with fewer competitors.

*

This Executive Summary does not necessarily represent the consensus view of the Competition Committee. It does, however, encapsulate key points from the discussion at the roundtable, the delegates’ written submissions, and the Secretariat’s background paper.

In jurisdictions where amnesty/leniency programmes have proved less effective, competition authorities have devoted significantly more attention to pro-active cartel detection measures. The experience of most agencies is that a mixed cartel detection policy with both reactive and pro-active tools can contribute more strongly to an effective cartel enforcement programme. The roundtable highlighted that a sound cartel enforcement programme should include both leniency and proactive cartel detection tools, possibly including screens. Leniency programmes and proactive detection measures are not substitutes but are complement. Pro-active measures are able to strengthen the effectiveness of amnesty/leniency programmes by creating a stronger incentive for cartelists to apply.

- (2) *There are two general screening approaches: i) a structural approach, which includes the analysis of structural and product characteristics of a specific market or industry that make successful collusive strategies more likely; and ii) a behavioural approach, which includes the identification through screening of firms' behaviour or market outcomes that may be the outcome by a collusive strategy. A combination of structural and behavioural screens is the most effective approach to cartel screening.*

“Structural screening” is based on what economic theory and empirical research tell us about the relationship between market characteristics and the likelihood of collusion occurring in markets, essentially by identifying certain structural features of products or markets which facilitate collusion. This approach may enable a competition agency to screen any number of markets or industries in order to flag those markets where a cartel is more likely to occur.

Theoretical economic research has identified a number of factors that could influence the potential gains and costs -and therefore the rationality and stability- of cartels and collusion. These factors can be grouped into structural, supply-related, and demand-related factors. Structural factors that ease collusion include a small number of competitors, high entry barriers, frequent interaction between firms (e.g. repeated bidding opportunities), and market transparency. Demand-related factors include stable demand conditions, low demand elasticity, buying power, and the absence of club and network effects. Finally, supply-related factors include the mature stage of an industry, the low pace of innovation, symmetry and commonality of costs, symmetric capacities, product homogeneity, multi-market contacts, structural links, and a history of anti-competitive conduct, as well as frequent contractual relationships between competitors (e.g. co-operation agreements).

“Behavioural screens” refer to a variety of methods designed to indicate whether or not collusive behaviour of firms has in fact affected a specific market. Behavioural screening involves painting a picture of what competition or collusion in a specific market would look like, based on the analysis of a variety of variables such as prices, quantities, market shares, bidding decisions, etc.. Under this “behavioural” or “outcomes” approach, economists look at the behaviour of markets and their participants and apply screens to assess whether the observed behaviour is more or less likely to be consistent with collusion or competition. Behavioural screens flag situations where possible manipulations or conspiracies have taken place on the basis of two fundamental principles: (i) Improbable or unusual events can be a sign of manipulation or of a cartel conspiracy if these events cannot be explained but for industry co-ordination; and (ii) Comparing behaviour of individuals or groups in similar situations may reveal that one group's behaviour is subject to manipulation or conspiracy.

The structural and behavioural approaches do not exclude each other. On the contrary, they are usually viewed as complementary, so that if the structural screening gives positive results, agencies can proceed with a more targeted review based on firms' behaviour and their consistency with a competitive process.

- (3) *Screens have been useful in public procurement as tools to detect bid rigging conspiracies. A number of competition agencies reported having used screens to detect bid rigging, which was made possible by the availability of extensive and reliable bidding data on public tenders.*

Detecting bid rigging conspiracies has been a fertile ground for the development of behavioural screens. The richness of data available on public tenders has allowed economists and competition agencies to develop different screening techniques and offered the opportunity to test them empirically. The fact that bid rigging cases represent a significant share of cartel enforcement in many jurisdictions has also facilitated the definition of collusive markers for the design of the screens.

In general, there are two types of intuitions underlying bid rigging screens. First, that in a competitive tender process, bids should be submitted independently. If a cartel is at work, bids will show signs of co-ordination between the bidders. If bids are “too correlated” this can be explained by collusion. Second, bids submitted by independent competitors should reflect appropriately the costs of each bidder in a competitive market. Based on these two criteria, economists have developed a number of screens to detect possible bid rigging conspiracies.

In general, competition agencies focus on commonly used patterns which might indicate collusive bidding, such as submission of identical bids, high correlation between bids, lack of correlation between the costs and the bid submitted by each bidder, and significant differences between the winning and losing bid. The roundtable discussion revealed a number of successful cases in detecting bid rigging conspiracies with the use of screens. Some jurisdictions, moving a step forward, have further developed specific bid rigging indicators programmes with the use of databases for a constant monitoring of bids and bidding patterns. Such systems are designed to quantify the probability of bid rigging with the use of specific markers (i.e. indicators) such as the rate of successful bids, bid price, number of failures, price increases etc.

- (4) *The implementation of screening techniques has revealed several challenges with the use of screens. Screens do not provide sufficient proof of a cartel existence. Screens can provide false positive or false negatives or fail to distinguish between explicit and tacit collusion. Screens are resource and data intensive. Cartelists may be able to adjust their behaviour to the screening technique in order to evade detection.*

The roundtable revealed a variety of limitations and challenges from the implementation of screening methods. Screens can be very useful to flag unusual patterns in certain markets but these patterns are not sufficient evidence of collusion. Screens need to be followed by in-depth investigations. Screens are the first step whose aim is to flag situations where further investigation might be necessary. They are just the starting point of a cartel investigation, and rarely provide evidence sufficient to prove the existence of a cartel. Often, courts consider screening results as enough to authorise the competition authority to execute an inspection or dawn-raid.

Cartel screens can produce false positives (flagging cases which do not merit further scrutiny) or false negatives (failing to identify collusion in a particular market) and this is something that competition agencies should be aware of when deciding whether to implement a cartel screening programme. A specific type of false positive may result from screens’ apparent failure to distinguish between different types of collusion, i.e. between situations of explicit and tacit collusion.

An effective screening programme requires extensive human resources and expertise. This may be burdensome and could discourage agencies especially when the resources available are allocated to traditional pro-active tools such as cases detected through the leniency programme. Some delegations claimed that the need for resources is comparatively little in order to achieve the target and it is a matter of efficient allocation rather than a high investment. Additionally, sufficient, relevant and accurate information and data are necessary for all stages of screen implementation, from screen design, to the implementation of the screen, up to the interpretation of its results. Accessing this information is a key issue in any empirical methodology and exposes screens to a serious risk of failure if gathering the necessary information reveals the on-going agency scrutiny to cartel members. Several delegations stressed that in some cases the lack of reliable data was one of the main reasons why screens produced misleading results or were considered unreliable.

Another concern about screens relates to the conspirators' ability to evade detection by adjusting their concerted behaviour in a manner which would enable them to "beat" the screen. This can happen especially when information regarding the competition agency's general approach and screen methodology is publicly known. Strong and profitable cartels adapt more effectively to a new environment and this danger can arise when the use of screens is made publicly known by the competition authority. However, several delegations pointed out that even if the screening programme is known publicly, it might still be challenging for cartelists to adapt, provided that crucial details of the programme and its implementation have not been disclosed.

Despite these limitations, the roundtable revealed that many jurisdictions use some type of screening methodology, either as a general cartel detection policy or in specific cases. Irrespective of the screening tools used, the main point emphasised in the roundtable is that competition authorities should not rely exclusively on one instrument but should follow a holistic approach to cartel detection.

BACKGROUND NOTE

*By the Secretariat **

1. Introduction

Investigating, prosecuting and bringing hard core cartels to an end, as well as deterring individuals and firms from taking part in such conspiracies remains a top priority for competition agencies. But because cartels are secret conspiracies and cartelists go to great lengths in concealing their illegal activities, evidence of direct communications and agreements between competitors is hard to uncover. In their efforts to overcome the inherent challenge of cartel detection, competition agencies tend to rely on “reactive detection” tools, i.e. on third parties coming forward with information on the existence and the functioning of the cartel, rather than pro-actively seeking out suspicious firms or markets to investigate *ex officio* (so called “pro-active detection”). Dissatisfied customers reporting suspicions of anti-competitive behaviour by sellers are an important source of information for competition agencies, just like disgruntled employees turned into whistle-blowers, or co-conspirators who choose to come forward and confess their illegal behaviour through amnesty or leniency programmes.¹ It is for this reason that most competition agencies around the world allocate most of their resources to pursuing the growing number of cases brought to them by such detection programmes, and devote less attention to pro-actively seeking out and detecting cartels. This policy choice has as a consequence that in some jurisdictions leniency programme cases have “crowded out” efforts to expose cartels by other means.

The question that this paper contributes to address is whether it is a good policy for competition agencies to rely exclusively, or almost exclusively, on amnesty/leniency programmes to detect cartels. There is a growing body of literature arguing against what is perceived a competition agencies’ bias towards reactive detection measures, and in particular amnesty/leniency programmes. In this regard, some commentators argue that neglecting pro-active detection measures may not only results in failure to capitalise on the stand-alone ability of these measures to trigger successful cartel investigations, but may also results in failure to benefit from their positive externalities in terms of improving the effectiveness of amnesty/leniency programmes. For example, a senior U.S. cartel enforcement official has recently stated that one of the three cornerstones of an effective amnesty/leniency programme is that “*organizations must perceive a high risk of detection by antitrust authorities if they do not self-report*”.²

It follows that competition agencies should consider complementing their reactive detection measures by pro-actively seeking out cartels and launching independent *ex officio* investigations against suspicious

* This paper was written by Antonio Capobianco of the OECD Competition Division and Yonatan Cwikel on secondment to the OECD Competition Division from the Israeli Antitrust Authority.

¹ According to the International Competition Network (ICN), complaints made by competitors, employees or consumers are the predominant method of cartel detection, but amnesty/leniency programmes seems to be more effective, mainly because they allow direct and speedy access to hard evidence of cartel behaviour, and because their implementation seems to require fewer resources in comparison to other detection measures. See ICN (2010).

² See Hammond (2010).

firms and individuals. It is in this context that this paper focuses on the role that empirical screens may play in pro-active cartel detection and in initiating *ex-officio* investigations. Screens are detection methodologies designed to help competition agencies decide which markets or industries are more likely to be prone to cartel behaviour, and in some cases they can also flag to them possible cartel behaviour that would deserve closer scrutiny.³

One approach, commonly referred to as “structural screening”, is based on what economic theory and empirical research tell us about the relationship between market characteristics and the likelihood of collusion occurring in markets, essentially by identifying certain structural features of products or market which facilitate collusion. This approach may enable a competition agency to screen any number of markets or industries in order to flag those markets where a cartel is more likely to occur.

The second approach, based on “behavioural screening”, is used for indicating whether a specific market was actually affected by collusion. Of course, direct evidence of cartelisation is not easily observable and is hard to uncover. However, economic theory and analysis of data on observed cartels has identified various types of observable traces that the creation, life, and break-up of a cartel are likely to leave behind. These trails are what behavioural screens are designed to detect.

These two approaches do not exclude each other. On the contrary, they are usually viewed as complementary, so that if the structural screening gives positive results, agencies can proceed with a more targeted review based on firms behaviour and their consistency with a competitive process.

At the outset, a note of caution on screens as an enforcement tool is necessary. The academic literature recognised that it is challenging to engage in a theoretical and empirical discussion on what sort of structures and/or behaviours are consistent with cartels. As this paper hopes to explain, there are market structures and market outcomes which *could* be consistent with collusion. Screens aim at detecting these structures and outcomes. However, screens do not answer a fundamental question that agencies face when screening gives a positive result: has the screen detected a cartel or “just” tacit collusion? This is most obviously a problem for structural screens, but it also relates to behavioural - do tacit and explicit collusion differ in what they imply for parallel pricing, variance of price etc.? It is important to say clearly at the outset that an effective screen should be able to distinguish competitive from non-competitive conduct, but whether the non-competitive conduct amounts to an infringement of competition law must be further ascertained through an in-depth antitrust investigation and the gathering of actual evidence of cartelisation.⁴

The purpose of this Background Note is first discusses the relationship between reactive and pro-active cartel detection tools, and makes a policy argument in favour of a mixed cartel detection policy where reactive and pro-active tools are used together and in support of each other. The second part of the paper explores the role that pro-active detection measures and screens in particular may play in effective cartel detection and deterrence. It describes the main features of structural and behavioural screens; it provides an overview of the main theories on cartel screens developed in the literature; and it focuses on effective screen design and on the challenges associated with the implementation of screens. The paper

³ Screens have multiple uses, but the focus of this paper is on their use in anti-cartel policies implemented by competition agencies and public procurement officials. For a review of additional uses of screens see the introductory remarks in Chapter 3 and Abrantes-Metz and Bajari (2012); Abrantes-Metz (2012); and Hüschelrath and Veith (2011).

⁴ If the purpose of screens is to detect collusive markets and outcomes for further investigation by the competition agency, and not to prove the existence of a cartel, in some (admittedly rare) cases they have also provided the agency with actual evidence of cartelisation that has been used in court to prove an actual cartel infringement. The Mexican case discussed in Annex 2 is a clear example of this.

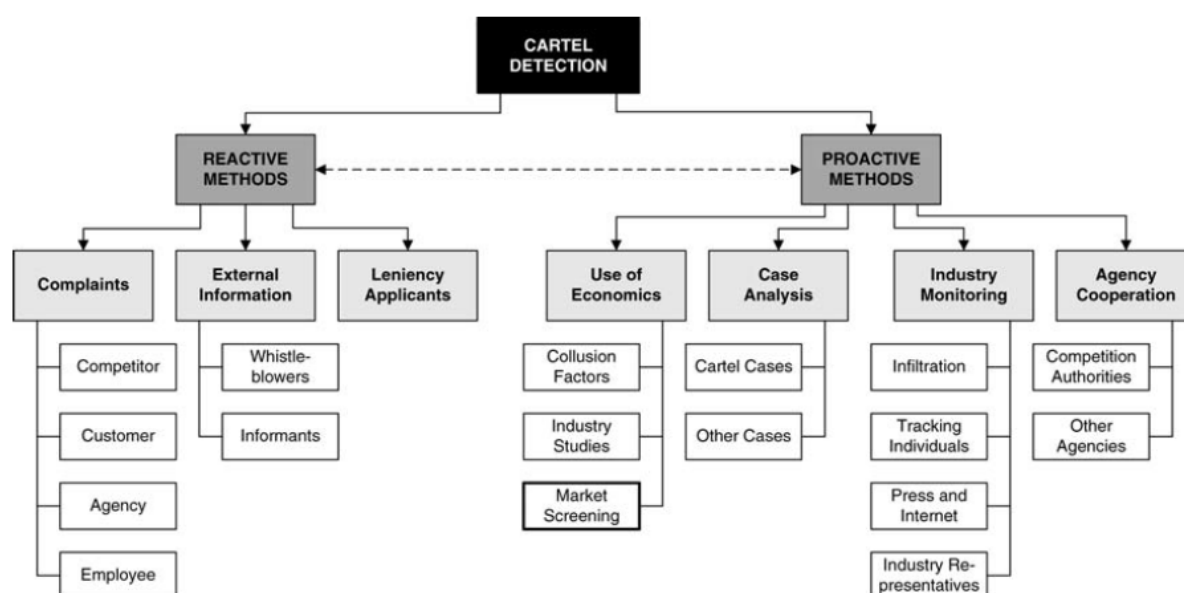
includes two annexes: Annex 1 describes some of the cartel screens proposed by the economic literature, and Annex 2 discusses some of the experiences with the application of structural and behavioural screens by competition and other regulatory agencies to detecting cartels and other types of frauds and manipulations.

2. Balancing reactive and pro-active cartel detection tools

The adoption of an anti-cartel legislation in many OECD and non-OECD countries reflects the notion that cartels inflict considerable harm to society, and that society should take measures to protect itself against such practices and to punish the offenders. However, at least in jurisdictions where leniency or amnesty programmes are in place, deterrence (i.e. the decision of a firm not to engage in cartel activity) and desistance (i.e. the decision of a firm to break-up from an existing cartel), rather than retribution, is the anti-cartel enforcement policy's ultimate goal.⁵ After all, this is the reason why societies are willing to let the first cartel member to come forward and confess to being part of a cartel to go unpunished and this with the aim of intensifying the conflict of interests between cartel members, increasing cartel instability, and ultimately reducing the incentives to take part in cartels in the first place.

Effective cartel deterrence and desistance depend on the probability of the cartel being detected and their members being punished. But cartels secretive nature poses serious challenges for competition agencies, which in turn continue to consider a variety of measures to effectively detect cartels.⁶ Broadly speaking, competition agencies detect cartels through different means which include both pro-active and reactive measures (see Fig. 1 below).⁷

Fig. 1 – Pro-active and reactive methods of cartel detection



Source: Hüschelrath (2010), based on ICN (2010).

⁵ E.g. Friederiszick and Maier-Rigaud (2008); Spagnolo (2008); Harrington and Chang (2012), all highlighting deterrence as a primary goal for anti-cartel enforcement policy.

⁶ E.g. Schinkel (2008).

⁷ For a general review of various cartel detection measures, see ICN (2010).

Reactive detection methods are based on information or evidence brought before the competition agency by third parties. Leniency or amnesty programmes are considered the most effective reactive detection measure, especially because they provide the competition agency with direct evidence of a cartel. This in turn facilitates the investigation of the illegal conduct and the subsequent punishment of the perpetrators. In contrast, *pro-active detection* occurs when competition agencies engage in cartel detection on their own initiative, i.e. pro-active methods of cartel detection are initiated from within the agency and do not rely on an external triggering event.

There is little evidence on the relative importance of reactive cartel detection measures as opposed to pro-active methods. In a seminal paper, which pre-dates the adoption of the U.S. amnesty programme, Hay and Kelley⁸ identified at least twelve different detection methods in both categories actually used by the U.S. DOJ between 1963 and 1972 to detect overall 49 cartels. However, in 70% of the cases, one of the following four methods was actually applied: Grand Jury investigation in another case (24%), complaint by competitor (20%), complaint by customer (14%) and complaint by a local, State, or Federal agency (12%). More recently, the ICN concluded that most cartels are still discovered because of complaints by consumers and competitors.⁹

Competition agencies employ a variety of pro-active detection methods, such as the monitoring of media or trade press, monitoring of firms' participation to trade/business associations' activities and of their attendance at industry events, and of course – empirical economic analysis and screens. These and other pro-active methods are usually more resource intensive and costly to implement, and their success rate, in terms of the number of cartel cases actually discovered through such methods, seems to be rather low.¹⁰ Some authors argue that competition agencies should nevertheless invest more in pro-active detection and that this could be achieved by a wider implementation of empirical screens. In the following sections, we explore the arguments calling for a better balance between the main reactive detection measure – the amnesty/leniency programme – and pro-active detection measures.

2.1 *The success of leniency/amnesty programmes*

By offering amnesty to the first conspirator who fully cooperates with a competition agency, or a more lenient treatment to subsequent applicants, amnesty/leniency programmes are intended to induce cartel members to come forward and disclose the existence of a cartel, and to provide evidence of their involvement in the conspiracy.¹¹ Amnesty/leniency programmes have increased significantly the number of detected cartels in many jurisdictions.¹² They seem to have also facilitated the successful prosecution of

⁸ Hay and Kelley (1974).

⁹ ICN (2010). This despite the fact that complaints are not considered a very effective detection measure because they often do not provide competition agencies with sufficient grounds for initiating investigations, and because they are costly to handle as the sheer number of complaints lodged with competition agencies can be significant. Whistle-blowers and informants can also lead to cartel detection; however, it is quite typical for the information provided by said sources to be outdated or biased.

¹⁰ As shall be further discussed, one should also consider detection measures' effect on deterrence. In theory, implementation of very effective measures may increase deterrence to the extent that no cartels being detected.

¹¹ This general description of amnesty/leniency programmes is sufficient for the current discussion. Note, however, that while amnesty/leniency programmes are conceptually similar, their design and implementation may vary across jurisdictions (e.g. Spagnolo, 2008). For further details on different types of leniency programmes see OECD (2012).

¹² E.g. Friederiszick and Maier-Rigaud (2008); Harrington and Chang (2012) and references there.

cartel cases by providing competition agencies with hard evidence of the competition law infringement.¹³ A few examples will illustrate this success story:

- In the United States, the first antitrust amnesty programme was adopted in 1973 but remained largely ineffective until it was reformed in 1993.¹⁴ Today, the programme allows corporations and individuals, who have engaged in anti-competitive cartel activity to receive amnesty from government penalties (fines and prison sentences). According to Werden and others, “[o]ver ninety percent of fines imposed for Sherman Act violations since 1996 can be traced to investigations assisted by leniency applicants, and prosecutions assisted by leniency applicants accounted for over ninety percent of the total commerce affected by all the cartels prosecuted by the Division since 1999.”¹⁵
- In the European Union, the first leniency programme was adopted by the European Commission in 1996, and was subsequently revised in 2002 and in 2006.¹⁶ As a consequence of the adoption of its leniency programme, the European Commission received many leniency applications (approximately 188 between 1996 and 2002) and 46 out of 52 cartel decisions (88%) from 2002 through 2008 were triggered by a leniency application.¹⁷
- Similar experiences can be traced in various jurisdictions around the world. By way of example, Harrington reports that the South African Competition Commission receives on average three leniency applications a month, which is more than the average monthly rate of amnesty applications in the U.S. Similarly, In Spain, the day its leniency programme was launched on February 28, 2008, seven applications were received.¹⁸

The figures and table below illustrate the fast pick up of leniency programmes in both OECD and non-OECD economies.¹⁹

¹³ ICN (2010).

¹⁴ The 1993 revision made it possible for amnesty to be awarded even when an investigation had been started and made it a condition that the U.S. DOJ “has not received information about the illegal activity being reported from any other source.” This means that amnesty is limited to one firm per cartel. Relevant material and information on the U.S. Leniency Program are available at <http://www.justice.gov/atr/public/criminal/leniency.html>.

¹⁵ Werden, Hammond and Barnett (2012).

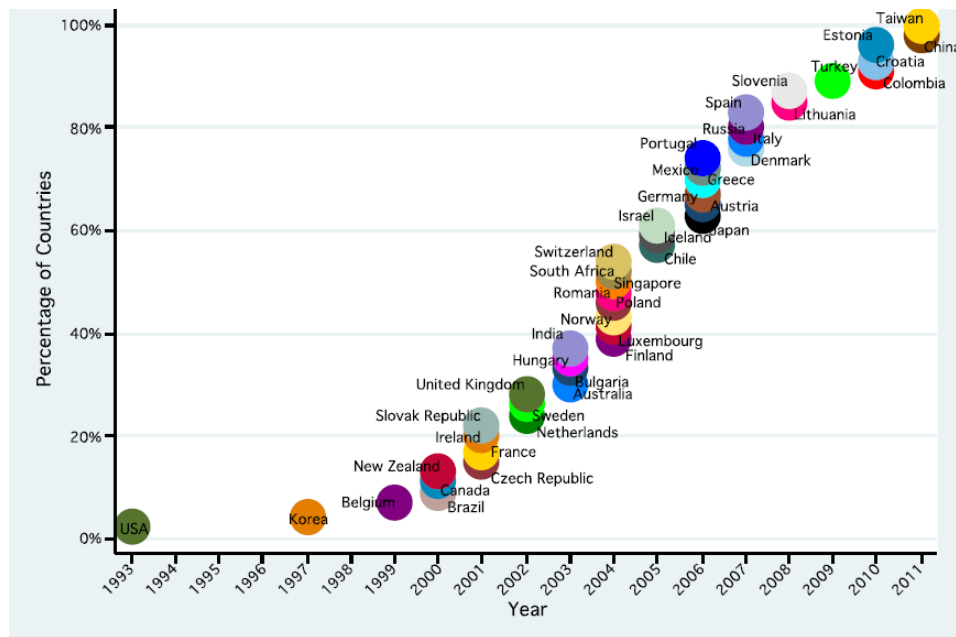
¹⁶ See European Commission, Commission Notice on the non-imposition or reduction of fines in cartel cases, in O.J. [1996] C 207/4; European Commission, Commission Notice on Immunity from fines and reduction of fines in cartel cases, in O.J. [2002] C 45/3; European Commission, Commission Notice on Immunity from fines and reduction of fines in cartel cases, in O.J. [2006] C 298/17.

¹⁷ European Parliament, Parliamentary questions: Joint answer given by EU Commissioner Kroes on behalf of the European Commission to written questions: E-0890/09, E-0891/09, E-0892/09, 2 April 2009; and Riley (2010).

¹⁸ Harrington (2010).

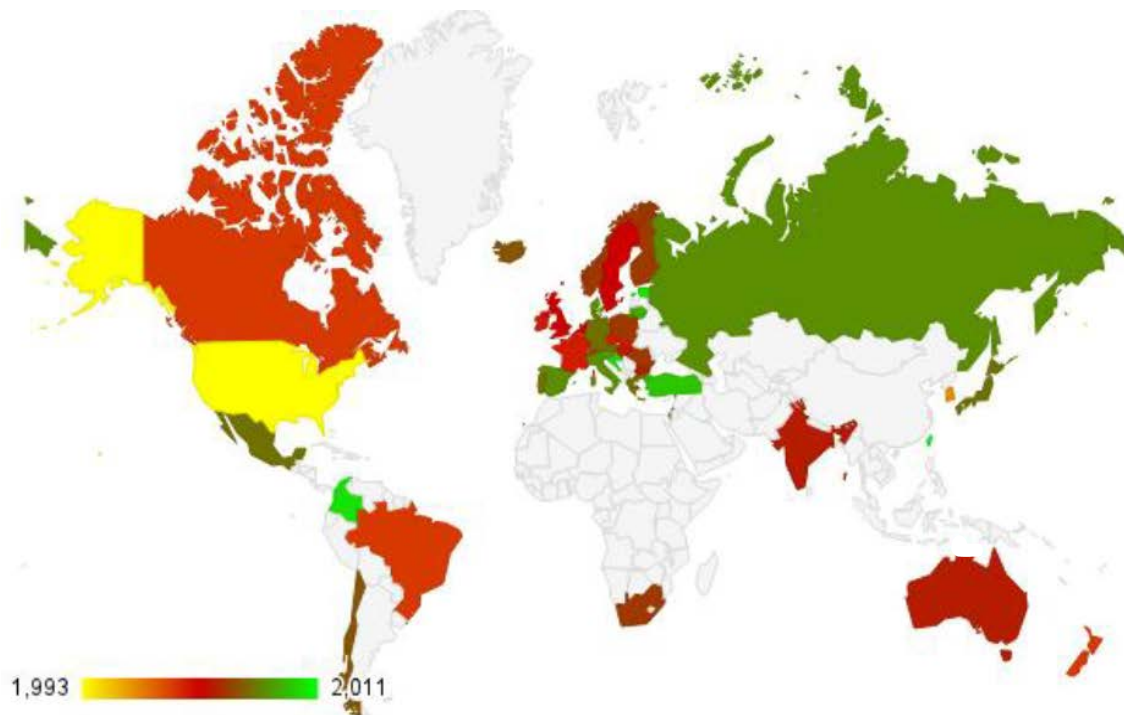
¹⁹ The figures and table from Borrell, Jiménez and García (2012) do not include the EU leniency programme, first adopted in 1999 and then revised in 2002 and 2006. The authors of this Background Paper also note that the German Bundeskartellamt established its leniency programme in 2000, and only revised it in 2006, which would make Germany an “early adopter” in Table 1.

Fig. 2 – Pick up of leniency programmes around the world



Source: Borrell, Jiménez and García (2012)

Fig. 3 - Pick up of leniency programmes around the world (map)



Source: Borrell, Jiménez and García (2012)

Table 1 – Pick up of leniency programmes around the world

		Countries with leniency programme	% adopters
1998		2	3%
1999		2	3%
2000	Early adopters	3	5%
2001		5	8%
2002		9	15%
2003		12	20%
2004	Middle adopters	16	27%
2005		25	42%
2006		28	47%
2007		34	58%
2008	Latecomers	38	64%
2009		40	68%
2010		41	69%
2011		44	75%

Source: Borrell, Jiménez and García (2012) – Survey based on 54 jurisdictions, and on leniency information from competition authorities’ web pages and from the ICN website

Because amnesty/leniency programmes are generally regarded as a very effective investigative tool,²⁰ some competition agencies seem to have shifted most of their resources to the pursuit of amnesty/leniency cases.²¹ In addition, some studies suggest that leniency programmes have a positive effect on cartel desistence and deterrence levels, though this effect may be difficult to measure. For example, Borrell and others argue the implementation of leniency programmes has had an effect on managers’ perceptions of competition agencies’ detection capabilities.²² Using data for 59 countries during a 14-year span, the authors find that leniency programmes increase the perception of effectiveness by an order of magnitude ranging from 10% to 21%. They conclude that leniency programmes have become “*weapons of mass dissuasion*” for competition agencies, especially against the more damaging forms of explicit collusion in the market place.

2.2 Limits of amnesty/leniency programmes

The uptake of amnesty/leniency programmes around the world has raised concerns that competition agencies may become victims of their own success. The argument is that competition agencies impressed or flooded by an increasing number of amnesty/leniency applications and of successful cases detected

²⁰ ICN (2010); and Miller (2009), as far the US amnesty programme is concerned.

²¹ Friederiszick Maier-Rigaud (2008).

²² Borrell, Jiménez and García (2012). See also Chen and Harrington (2007), who argue that overall, implementation of amnesty/leniency programmes has a negative effect on cartel formation. On the same point, see also Aubert, Kovacic, and Rey (2003), Motta and Polo (2003), Spagnolo (2003), Feess and Walzl (2004), Motchenkova (2004), and Harrington (2005). However, some authors have questioned the effectiveness of amnesty/leniency programmes to deter and desist cartel behaviour (see, for example, Brenner 2009 and De 2010, both on the EC leniency programme).

through such programmes²³ are not devoting enough attention and resources to pro-active, independent anti-cartel enforcement. This over-reliance on amnesty/leniency programmes in the long run may undermine the effectiveness of cartel enforcement itself. Amnesty/leniency programmes are designed to take advantage of cartel dynamics and play on cartel members' incentives, conflicting interests and fear of detection, in order to cause them to break away from the cartel, report their fellow conspirators and for that to benefit from a more lenient treatment. But if competition agencies rely *only* on amnesty/leniency programmes to detect cartels, then cartels may remain undetected where incentives to break away from the cartel are weak.²⁴ This may be for example the case in small economies where corporate links between competitors are more prominent, or where many businesses are still family-owned. In these particular circumstances, the incentives to deviate from a cartel agreement may not be as strong and reactive detection tools, such as amnesty/leniency programmes, may not as effective. Complementing them with a vibrant pro-active cartel detection programme may affect the incentives of firms to enter the amnesty/leniency programme and strengthen the effectiveness of the programme itself.

Despite the implementation and success of amnesty/leniency programmes, cartels continue to form and operate.²⁵ Some studies suggest that profitable cartels seem more likely to remain stable and endure for longer periods of time, while it is often the case that cartels detected through leniency applications have already become unstable, for example due to some external shock.²⁶ If spontaneous reporting of stable cartels through amnesty/leniency programmes rarely occurs, one might argue that the value of amnesty/leniency programmes as a detection measure may be rather limited.²⁷ From a consumer welfare standpoint, an enforcement policy biased towards pursuing "terminal" cartels, as opposed to actively seeking out cartels which remain operational, may be questionable.²⁸

To conclude, both theory and practical experience seem to suggest that reliance on amnesty/leniency programmes alone may produce a sub-optimal probability of cartel detection, which in turn may have a negative effect on deterrence. For these reasons, among others,²⁹ primary reliance on amnesty/leniency programmes may be a cause for concern, even when a jurisdiction has many amnesty/leniency cases. While it may be possible to remedy some of these issues through a better design and implementation of

²³ Harrington and Chang are among those who argue that since competition policy's main goals are cartel desistance and deterrence, an amnesty/leniency programme's success cannot be measured only by counting the number of successful cartel cases initiated by amnesty/leniency applications. See Harrington and Chang (2012); Spagnolo (2003).

²⁴ Despite the recent successes in the fight against cartels around the world, a substantial fraction of cartels remain undetected. Combe, Monnier and Legal (2008) and Bryant and Eckard (1991), for example, estimates that the average annual probability of cartel detection in the EU and the US respective is rather low, i.e. somewhere between 12.9% and 15%.

²⁵ Levenstein and Suslow (2012); and Abarantes-Metz and Bajari (2012).

²⁶ Abrantes-Metz and Bajari (2012). Levenstein and Suslow (2012).

²⁷ Harrington (2008).

²⁸ Friederiszick and Maier-Rigaud (2008).

²⁹ One other concern worth mentioning is that conspirators may actually abuse amnesty/leniency programmes to maintain cartel stability, for example by threatening their fellow cartel members with a amnesty/leniency application. See Spagnolo (2003), Levenstein and Suslow (2012). In addition, amnesty/leniency programmes are sometimes questioned for other reasons, which are not necessarily directly linked to the probability of detection (for example, where amnesty/leniency is abused to raise former fellow conspirators' costs in post-cartel ensuing competition, or where applicants earn additional supra-competitive profits by undercutting the agreed cartel price and subsequently filing for amnesty/leniency, etc.; e.g. Schinkel, 2007). While various arguments along this line may support the case against over-reliance on amnesty/leniency programmes, they are beyond the scope of our current discussion.

amnesty/leniency programmes,³⁰ competition agencies should consider the beneficial role that pro-active detection measures may play in increasing cartel detection either directly or through stronger incentives to enter into the amnesty/leniency programme. As opposed to amnesty/leniency programmes, pro-active detection measures need not be based on cartel members' incentives and are not bound by cartel dynamics, but rather leave the initiative with the competition agency.

2.3 *The benefits from a mixed cartel detection policy*

Pro-active detection measures should be implemented not only because of their intrinsic detection capabilities, but also because they may produce positive externalities in terms of improving the efficacy of amnesty/leniency programmes.³¹ So if pro-active methods are properly designed and implemented,³² they may allow the agency to detect and subsequently investigate cartels which would otherwise remain stable under a stand-alone amnesty/leniency regime.³³ It should be noted in this regard that the probability of detection plays an important part in the decision of amnesty/leniency applicants to cooperate with the competition agency. It follows that if competition agencies can somehow increase the probability of detecting cartels, they may be able to induce more amnesty/leniency applications. In other words, if competition agencies are able to strike fear of detection into cartelists' hearts, that may be another reason for conspirators to desist from their activities and to race for amnesty/leniency.³⁴ Thus, pro-active detection measures may in fact be implemented for the purpose of complementing and reinforcing amnesty/leniency programmes.

One apparent limitation with amnesty/leniency programmes, even in jurisdictions where they have been extremely successful, is that investigations initiated through amnesty/leniency seem to be concentrated in a relatively small number of industries.³⁵ In the United States for example, in the late 1990s, investigations were concentrated in the food and feed industry, the vitamins industry, and the chemical industry. Today, the concentration appears to be even more focused than it was in the 1990s. The "big three" industries over the past five years are the electronics/computer parts industry, the air cargo/passenger industry, and the automotive parts industry.³⁶ This can only be partly explained by the U.S. Amnesty Plus programme.³⁷ Pro-active detection tools can help agencies who are in a similar

³⁰ It appears that some fundamental issues pertaining to the design and implementation of amnesty/leniency programmes are still subject to an on-going contentious debate (for example, the question of awarding leniency to several applicants, rather than only to the first applicant); see e.g. Spagnolo's review of differences between the amnesty/leniency programmes in place in the U.S and the E.U. (Spagnolo, 2003). The on-going search for the optimal amnesty/leniency programme may result in better programme design and implementation, thus alleviating some of the concerns raised by heavy reliance on amnesty/leniency programmes.

³¹ E.g. Harrington (2008).

³² See discussion in the Section 3.2 of this paper.

³³ Friederiszick and Maier-Rigaud (2008).

³⁴ Friederiszick and Maier-Rigaud (2008). See also Schinkel (2008), and Harrington (2006) who argues that pro-active empirical screens may scare cartel members enough to induce them to apply for amnesty/leniency.

³⁵ Klawiter (2012); Klawiter (2011).

³⁶ Klawiter (2011).

³⁷ "Amnesty Plus" refers to the benefits that the U.S. DOJ can offer to a cartel member who discloses previously undetected antitrust offenses involving a cartel *different* from the one that first brought that cartel to the prosecutors' attention. Amnesty Plus induces firms that are already under investigation to clean house and report violations in which it may be involved in other markets.

situation to expand the effect of deterrence beyond the markets where leniency is effective to the whole economy.

Advocates of pro-active detection measures recognise amnesty/leniency programmes' success and contribution to cartel prosecution and deterrence, and are not arguing that amnesty/leniency programmes should be abandoned. They rather support the proposition that to maximise the effectiveness of amnesty/leniency programmes they should be complemented by pro-active enforcement and *ex officio* investigations. Striking a better balance between pursuing amnesty/leniency cases on the one hand and unearthing cartels through *ex officio* investigations on the other, could significantly contribute to a successful anti-cartel programme and to an increase of the overall deterrence and desistance levels. It is, however, important to note that the arguments against over-relying on amnesty/leniency programmes and neglecting pro-active detection measures may be invoked in general support of pro-active enforcement policy and other specific pro-active detection measures.³⁸

3. Empirical screens to detect cartels

There is no general definition of what is a cartel screen. Some academics focus on what screens do; for example, Abrantez-Metz defines screening as “[t]he ability to flag unlawful behavior through economic and statistical analyses.”³⁹ Other definitions focus on the methodology used; for example, according to Harrington “[s]creening refers to a process whereby industries are identified for which the existence of a cartel is likely. [...] Screening methods [are] designed to pick up the transition from non-collusion to collusion – looking for a radical change in firm behavior - or the stationary collusive phase – finding differences in behavior from when firms compete.”⁴⁰

Cartel screens are economic tools designed to analyse observable economic data and information,⁴¹ such as information on various product and market characteristics, data on costs, prices, market shares, various aspects of firm behaviour, etc. and flag markets which may either have been affected by collusion, or which may be more susceptible to collusion. Where such analysis raises suspicions that a specific market may be affected by collusion, a competition agency may consider conducting further inquiries (“verification stage”) and, where appropriate, to conduct a full-blown, independent *ex officio* investigation to collect direct evidence of cartelisation through searches and seizures, witness interviews, etc. (“prosecution/investigation stage”). Results from screens are usually not intended to serve as proof that firms have engaged in illegal behaviour, but only as a measure of singling out markets worthy of additional review, for prioritising complaints or for focusing investigations on particular markets, firms or individuals etc.⁴²

³⁸ In a recent article, Abrantes-Metz argues that an effective anti-cartel enforcement policy should include six proactive and reactive components: education of the business community on competition law issues; clear guidelines on horizontal exchange of information; leniency programmes; screening programmes; incentives for effective corporate governance; and rewards for whistle-blowers. See Abrantes-Metz (2013).

³⁹ Abrantez-Metz (2013).

⁴⁰ Harrington (2006).

⁴¹ To clarify, for our purposes, the term “observable data and information” excludes any direct evidence of illegal cartel agreement of the type which is generally revealed to competition agencies only through amnesty/leniency applications, whistleblowing, seizure of documents in the framework of a dawn raid, or any other method designed to reveal direct evidence of illegal explicit agreement which would otherwise remain concealed.

⁴² However, screens can also produce evidence which may serve, together with additional facts, as indirect proof of a conspiracy. See discussion on Mexico in Annex 2.

Box 1 - Multiple uses of screens beyond cartel detection by competition agencies

Beyond cartel detection by competition agencies,⁴³ screens may have multiple uses. The literature has identified the following areas where screen can prove useful:

- Screens as a means to strengthen compliance and audit programmes:⁴⁴ Just like cartel detection programmes by competition agencies, firms compliance programmes are designed to detect possible instances of law infringement so that the company can take the necessary actions to ensure compliance, including applying for amnesty or leniency. Screening can help companies identify high risk areas or parts of a company's business where a cartel could be in place.⁴⁵ Companies can then allocate compliance resources more effectively. The implementation of screens as part of compliance programmes can be especially effective because the screening exercise can rely on internal company data which is not necessarily always available to competition agencies.
- Screen as a tool for due diligence in M&A activities:⁴⁶ audits run by counsels before their clients engage in mergers or acquisitions can help detecting illegal conduct, manipulations, or frauds put in place by the target company. The acquirer can therefore better assess the antitrust and regulatory risks to which the target company is potentially exposed. This screening activity can also benefit from a rich data set, as counsel have access to all data and information on the target company during the pre-merger due diligence period.
- Screens can be useful tools in government investigations or during litigation:⁴⁷ when companies are under a government investigation (e.g., after a dawn-raid) or are required to comply with an information request, screens can be very effective in helping the company focusing on the conduct, the timing, and the duration of the alleged infringement, and planning the internal investigation effectively. Similarly, in an on-going litigation, screens can provide defendants with valuable information to develop their defence strategy. In this case, screens can help limiting the scope of the alleged infringement, its duration or the affected customer groups. On the prosecution or plaintiff side, results of screening can be used to suggest to decision makers that collusion or other manipulations are a likely event.
- Screens can help the plaintiff quantifying damage claims in private actions: Quantifying the harm from a cartel is a very difficult exercise.⁴⁸ Usually, damages from anti-competitive conduct are calculated by multiplying the difference between the price charged by the cartel and the price that would have existed in the absence of the cartel (the so-called 'but for' price) with the respective sales volumes. Screens can be used to estimate the "but for" competitive price.⁴⁹

⁴³ Screens can also help antitrust enforcers better managing their scarce resources, for example by providing arguments for rejecting clearly unfounded complaints about alleged cartels and for focussing resources on cases which have a higher chance of success. See, for example, the discussion on Brazil in Annex 2.

⁴⁴ Abrantes-Metz (2012); Abrantes-Metz (2011); Abrantes-Metz, Bajari and Murphy (2010); Klawiter (2012); Hüschelrath and Veith (2011a and 2011b).

⁴⁵ Hüschelrath and Veith (2011.a and 2011.b), for example, reviewed a combined data set of publicly available data with private data on about 340,000 market transactions from 36 smaller and larger customers of German cement producers to study the pricing dynamics during and after the breakdown of a German cement cartel. They investigated to what extent gross prices and net prices differed both during and after the breakdown of the cartel and whether and to what extent the pricing dynamics of cartel members and non-cartel members diverged in the cartel and non-cartel periods. The analysis revealed that both gross prices and net prices were significantly higher in the cartel period than in the non-cartel period. Moreover, by comparing cartel members' and non-cartel members' gross prices, they found cartel members to keep gross prices significantly higher in the post-cartel period. As gross prices are not only reported to industry associations and statistical offices but might also be used by antitrust agencies as part of market monitoring procedures, cartel members had incentives to keep these prices high during but also after the breakdown of the cartel agreement. As for net prices, they found no difference between the cartel members and non-cartel members price behaviour after the breakdown of the cartel. From a policy perspective, they concluded that if price screens had been available, the larger cement customers could have detected the upstream cartel *before* the competition agency did. The ability of screens to detect cartels early on has therefore several important implications for the business strategy of these larger customers as they could have easily reduced the cost of a key input.

⁴⁶ Klawiter (2012).

⁴⁷ Klawiter (2012).

⁴⁸ OECD (2011).

⁴⁹ Harrington (2006).

Market screens are based on a growing body of economic research and on the development of theoretical models of competition and collusion, as well as on the analysis of available data on markets in which robust competition prevails and markets known to have been affected by collusion. Such research has enabled economists to develop methods designed to analyse various aspects of firms and market performance against comparable competitive or non-competitive benchmarks, and to scan data for distinctive indicators (or markers) of collusion, suspicious patterns, anomalies etc., which may either be incompatible with competition or associated with collusion.

It is possible to distinguish between two general types of approaches to cartel screening.⁵⁰ The first is the “structural” approach, which typically involves screening a series of industries or markets in the attempt to identify those which exhibit characteristics which make them more prone to collusion. The second, “behavioural” approach, is designed to flag firms behaviour or market outcomes which may raise suspicions that firms have in fact colluded. Some general frameworks proposed in the literature involve a combination of both approaches.

3.1 *Structural screens*

Structural market screening typically involves a cross-industry or cross-market search for those characteristics which are known to facilitate cartelisation, or which have been exhibited in cartelised industries in the past. As opposed to behavioural screens, the focus is not on firms behaviour or market outcomes, but rather on the structural (product and market) circumstances in which collusive arrangements are more likely to form and thrive. Structural screens may serve two main purposes in the context of anti-cartel enforcement. First, structural screens may be useful to create an initial list of industries that are worthy of further scrutiny.⁵¹ Various pro-active methods can then be used to follow up on this list, including behavioural screening methods. Second, structural screens may complement reactive detection measures by allowing competition agencies to focus their resources on the most promising cases initially originated from complaints.

In most cases, structural screens are rather straightforward and relatively simple to implement. They do not involve complicated econometric analysis or extensive staff training on the screening process. In addition, structural screens usually require data which is readily available or rather simple to collect. Another advantage of structural screens is that they may be quite difficult or even impossible for cartelists to beat.⁵² However, since structural screens only point at markets which exhibit a *propensity* for collusion, they do not provide competition agencies even with preliminary evidence of collusion.⁵³ Thus, one might argue that their contribution to cartel detection (and deterrence) is rather limited and that cartelists need not necessarily be very concerned about beating structural screens, which in the end may produce a rather long list of industries deserving a closer look by competition agencies.

⁵⁰ Harrington (2008).

⁵¹ Structural screens may also be employed for uses other than systematic screening of industries. For example, structural screens may streamline the handling of complaints when the information provided to the competition agency by the complainant is limited both in quantity and quality. By pointing both at markets which exhibit low or high propensity for collusion, competition agencies can use structural screens to efficiently prioritise the review of complaints based on the markets exposure to the risk of collusion.

⁵² For example, it is unlikely that cartelists would ease entry just to increase the number of competitors and consequently reduce HHI levels, or to eliminate instruments that facilitate coordination such as trade associations.

⁵³ One just has to mention that cartels have formed and operated in industries which do not have necessarily been flagged by structural screens. Structural screens therefore can produce false negatives.

Box 2 - Structural analysis for co-ordinated effects in merger control

Competition agencies are well familiar with the methodology used by structural screens, as it is the same that underpins the analysis that agencies do when having to establish the risk of coordinated effects from a notified transaction. Merger guidelines and notices adopted by competition agencies include specific references to the structural characteristics of markets which make collusion more likely.

The Guidelines on the Assessment of Horizontal Mergers of the European Commission,⁵⁴ for example, state that in assessing the likelihood of coordinated effects, the European Commission should take into account all available relevant information on the characteristics of the markets concerned, including both structural features and the past behaviour of firms. As for the structural factors considered by the European Commission, the Horizontal Merger Guidelines state that *“it is easier to coordinate among a few players than among many. It is also easier to coordinate on a price for a single, homogeneous product, than on hundreds of prices in a market with many differentiated products. Similarly, it is easier to coordinate on a price when demand and supply conditions are relatively stable than when they are continuously changing. In this context volatile demand, substantial internal growth by some firms in the market or frequent entry by new firms may indicate that the current situation is not sufficiently stable to make coordination likely. In markets where innovation is important, coordination may be more difficult since innovations, particularly significant ones, may allow one firm to gain a major advantage over its rivals.”*⁵⁵

Similarly, the Horizontal Merger Guidelines adopted in 2010 by the United States Federal Trade Commission (U.S. FTC) and the Department of Justice (U.S DOJ)⁵⁶ state that a market is more vulnerable to coordinated effects if *“the terms offered to customers are relatively transparent”* and add that *“[p]rice transparency can be greater for relatively homogeneous products”*. Coordinated conduct is also considered likely *“if there are few significant competitors [and] if products in the relevant market are relatively homogeneous.”* Other factors identified in the US Horizontal Merger Guidelines which can have a bearing on coordinated conduct are technological innovation, elasticity of demand, and buyer power.

In the United Kingdom, the Merger Assessment Guidelines jointly released by the Competition Commission and the Office of Fair Trading (OFT) in 2010⁵⁷ say that *“[w]hen assessing coordinated effects, the Authorities will analyse the characteristics of the market that could be conducive to coordination.”* The Guidelines also discuss the factors that the two agencies may consider when deciding if the merging firms would be able to reach an understanding on the terms of coordination. These include *“the number of firms in the market—the fewer firms, the easier it will be to reach an understanding; and the degree of complexity in the environment in which firms interact—the more complex this environment, the more difficult it will be for firms to reach a common understanding (in particular for tacit coordination).”*

Theoretical economic research has identified an ample number of factors that could influence the potential gains and costs -and therefore the rationality and stability- of cartels and collusion.⁵⁸ These factors can be grouped into structural, supply-related, and demand-related factors. Structural factors that ease collusion include a small number of competitors, high entry barriers, frequent interaction between firms (e.g. repeated bidding opportunities), and market transparency. Demand-related factors include stable demand conditions, low demand elasticity, buying power, and the absence of club and network effects. Finally, supply-related factors include the mature stage of an industry, the low pace of innovation, symmetry and commonality of costs, symmetric capacities, product homogeneity, multi-market contacts, structural links, and a history of anti-competitive conduct, as well as frequent contractual relationships between competitors (e.g. co-operation agreements).

⁵⁴ In [2004] O.J. C 31, p. 5.

⁵⁵ See paragraph 42.

⁵⁶ Available at <http://www.justice.gov/atr/public/division-update/2011/merger-guidelines.html>.

⁵⁷ Available at http://www.oft.gov.uk/shared_of/mergers/642749/OFT1254.pdf.

⁵⁸ See among the vast literature on this point Rey (2006); Grout and Sonderegger (2005); Grout (2006); ABA (2010); and ICN 2010.

3.1.1 *Structural factors*

The economic literature has identified a number of structural characteristics which make markets more prone to collusion. The concentrated nature of a market makes collusion more likely. The larger the number of competitors, the more difficult coordination becomes.⁵⁹ As the number of actual (and potential) competitors increases, the incentives to collude decrease and deviations from a collusive agreements are more likely (i.e. short-run gains from deviations increase, while the long-run benefit of maintained collusion is reduced).⁶⁰

In markets where entry is made difficult or is more costly by high (economic or legal) entry barriers, any attempt to maintain supra-competitive prices is likely to be more successful. If market entry is relatively inexpensive and likely, supra-competitive cartel profits would represent a very high incentive to new entrants to enter the market (e.g., short-term or ‘hit-and-run’ entry strategies). This would erode the profitability of the cartel, and the prospect of future entry will likely reduce the scope for retaliation.

In markets with a high frequency of interaction between competitors, cartels will be more sustainable.⁶¹ Frequent firms interaction provides for an increased number of opportunities to cartelists to observe the behaviour of their competitors and to punish deviations from the cartel agreement (i.e. the time of reaction to deviations is shorter). This will make retaliation more swift and the threat of punishment more credible.

Market transparency makes collusion more likely.⁶² Cartels can only operate if cartelists have access to information which allows them to monitor the implementation of the collusive arrangement and to retaliate promptly when one cartelist secretly undercuts the other cartel participants. This requires that deviations can be identified timely and that the other cartelists can react promptly. In markets where individual firms behaviour is not readily observable and cannot easily be inferred from available market data, strategic deviations will be more likely and collusion more difficult.

3.1.2 *Supply-side factors*

Mature industries with little innovation are more prone to stable cartels. Innovation limits the scope for collusion, as the incentives of firms to sell their new products will outweigh the incentives to collude and to share the market with competitors. Moreover, the prospect of innovation reduces the value of future collusion as well as the cost from possible retaliation.⁶³

It is easier to collude when competitors have similar costs and/or similar cost structures. Rey identifies three reasons why cartels are more complex if cartelists have different costs.⁶⁴ First, costs asymmetry may make it difficult to agree on a common pricing policy, since firms with a lower marginal

⁵⁹ Tirole (1988); Bain (1956).

⁶⁰ First, a small number of participants makes it easier to find a consensus over the modalities of the collusive agreement. Second, a small number of participants makes deviations from the collusive agreement easier to monitor. Third, as the number of firms increases, each firm gets a lower share of the market. This has the effect of increasing the appeal of deviations and of decreasing the fear of punishments hence making collusion harder to sustain. (See Grout, 2006)

⁶¹ Snyder (1996).

⁶² Stigler (1964) and Green and Porter (1984).

⁶³ Ivaldi, Jullien, Rey, Seabright and Tirole (2003).

⁶⁴ Rey (2006).

cost will insist on lower prices than those that high-cost firms would wish to sustain; more generally, different cost structures may rule out ‘focal points’ and consequently it exacerbates coordination problems. Second, technical efficiency would require allocating market shares to low-cost firms, which might be difficult to achieve in the absence of side-transfers. Third, lower-cost firms may be more tempted to deviate from a cartel agreement, both because they may gain more from undercutting rivals and because they may have less to fear from a possible retaliation by higher-cost firms.

Asymmetric distribution of production capacities is a factor which may hinder collusion as the firm with the largest production capacity will have greater incentives to undercut rivals, particularly if their production capacities limit their retaliatory power.⁶⁵

The nature of the product may also have an impact on the likelihood of collusion. It is far more easy for firms which supply homogeneous products to agree on a common price policy.⁶⁶ Product differentiation, on the contrary, may contribute to reducing market transparency and therefore makes collusion less sustainable over time.

If competitors meet on several markets (multi-market contacts) they will be able to sustain collusion more easily.⁶⁷ Multi-market contacts make firms interaction more frequent and increase the opportunities of retaliation in case of deviations. They also allow cartels to thrive in markets where industry characteristics would otherwise not permit it.

Structural links between competitors can facilitate collusion as they affect incentives to compete. Cross-shareholdings (even non-controlling, passive minority shareholdings) can reduce the gains derived from undercutting the other firm and therefore favour an alignment of price strategies.⁶⁸ For these reasons, collusion is more likely to emerge in markets where competitors are tied through structural links.

Even in the absence of structural links, the existence of co-operative agreements and/or other contractual relationships (such as financial loans) between competitors can affect the likelihood of collusion. Such contractual relationships can, for example, enlarge the scope for retaliation, thereby enhancing the ability to punish deviating partners. These agreements may also have a direct impact on the firms’ pricing strategies and on their overall incentives to compete.

3.1.3 *Demand-side factors*

A number of demand-side factors can affect the likelihood of collusion in a certain market.

Collusion is easier to sustain in markets with growing demand, where expected profits outweigh current profits. The threat of retaliation is more significant if demand is growing, as firms will not be willing to trade off short-term gains (from deviation) with the higher cost of future retaliation.

⁶⁵ The role played by capacity constraints on the feasibility of cartels is ambiguous. On one side, a capacity constrained firm has less to gain from undercutting its rivals, as it is able to accommodate only a fraction of the extra demand this would generate. On the other hand, capacity constraints limit firms’ retaliatory power. This is because the strongest penalty that firms can envisage is to produce at full capacity. See Brock and Scheinkman (1985); Compte, Jenny and Rey (2002).

⁶⁶ Chang (1991); Ross (1992).

⁶⁷ Edwards (1955); Bernheim and Whinston (1990).

⁶⁸ OECD (2008); Malueg (1992); Gilo and (2005).

Similarly, collusion is more sustainable in markets that are not subject to significant demand fluctuations, since peak periods exacerbate short-term gains from a deviation, relative to the potential cost of later retaliation.⁶⁹

It is unclear in the literature if the elasticity of demand has an impact on the sustainability of collusive prices. However, collusion is more profitable when demand elasticity is low, which in turn can influence the firms' willingness to establish a cartel and facilitates its stability over time.

If consumers have a strong buying power, a cartel may find it difficult to impose high prices, and this makes the illegal activity less profitable. Buyer power will affect incentives of firms to enter into a collusive arrangement in the first place.⁷⁰

3.2 Behavioural screens

Behavioural screens refer to a variety of methods designed to indicate whether or not collusive behaviour of firms has in fact affected a specific market. Behavioural screening involves painting a picture of what competition or collusion in a specific market would look like, based on the analysis of a variety of variables such as prices, quantities, market shares, bidding decisions, etc.. Under this "behavioural" or "outcomes" approach, economists look at the behaviour of markets and their participants and apply screens to assess whether the observed behaviour is more or less likely to be consistent with a collusion or competition. According to Harrington, behavioural assessment "*focuses on the market impact of [...] coordination; suspicions may emanate from the pattern of firms' prices or quantities or some other aspect of market behaviour.*"⁷¹

3.2.1 Designing effective behavioural screens

The design of behavioural screens is the one factor that affects almost exclusively their ability to flag situations where possible manipulations or conspiracies have taken place. Abrantes-Metz suggests that screen design should rely on either of these two fundamental principles:⁷²

- Improbable or unusual events can be a sign of manipulation or of a cartel conspiracy if these events cannot be explained but for industry co-ordination.⁷³
- Comparing behaviour of individuals or groups in similar situations may reveal that one group's behaviour is subject to manipulation or conspiracy.⁷⁴

⁶⁹ Demand fluctuations hinder collusion, particularly when fluctuations are *deterministic* (as in the case of seasonal cycles, where it is anticipated that the future will be less rosy) as opposed to random. On the vast literature on the demand fluctuation in collusion, see Rotemberg and Saloner (1986), Haltiwanger and Harrington (1991), Bagwell and Staiger (1997) and Staiger and Wolak (1992).

⁷⁰ Snyder (1995); Compte (2000).

⁷¹ Harrington (2006).

⁷² E.g. Abrantes-Metz, 2013.

⁷³ Some screens attempt to identify observations which are improbable under regular market conditions. Such observations may indicate an artificial interference in the natural occurrence of events, and may be used to flag a collusive scheme. For example, it is highly improbable for a number of competitors participating in an auction to submit the exact same bid. To illustrate this principle Abrantes-Metz uses the example of cheat detection in a casino. If the probability of a winning bet in a roulette is roughly 0.5 %, a croupier will be alerted if a roulette dealer wins 20 times in a row. Statistical chances that this would happen are almost zero (though not impossible). He may not be able to prove that cheating has occurred, but he could look into the gambler's behaviour more closely to avoid the casino losing more money. See Abrantes-Metz (2013).

Screen design should ensure that screens are as simple and as cheap to implement as possible, while at the same costly for cartels to evade them, preferably to the point where costs of evading detection are high enough to discourage collusion in the first place.⁷⁵ Designing effective and robust screens, however, is not a simple exercise. It requires a good knowledge of the market context and of the industry to which the screen is supposed to be applied. A screen developed for a market with certain features bears a high risk of failure to flag manipulations and conspiracies if applied to a market which has different features. Unfortunately, there is no “one size-fits-all” screen so it is important that screens are tailored to the market that they are meant to screen. To ensure that screens are correctly tailored, Abrantes-Metz identifies six factors which are key to developing and implementing a good behavioural screen.⁷⁶ These include:

1. an understanding of the market at hand, including the nature of competition and the potential incentives to cheat;
2. a view of the likely nature of cheating;
3. a view of how cheating will affect market outcomes;
4. a set of statistics that can capture both the implications of cheating as well as ordinary, natural relationships between key market variables;
5. empirical or theoretical support for the screen; and,
6. the identification of an appropriate non-tainted benchmark against which the evidence of cheating can be compared.

3.2.2 *Theoretical foundations of behavioural screens*

Any screens should be based on a solid economic theory and on its ability to distinguish between competition and collusion. When designing a screen, therefore, it is important to first understand how competition and collusion work and whether a particular screen would help distinguishing one from the other. Without a solid economic theoretical foundation, a screening programme is unlikely to be implemented as its credibility will be undermined.

⁷⁴ To illustrate this principle Abrantes-Metz uses the example of a bid rigging conspiracy in the New York cement market. During the 1980s, the price of concrete in New York was 70% higher than in other U.S. cities. While prices may differ between geographic areas, price differences of 70% are rare and anomalous. This may suggest a possible competition problem. See Abrantes-Metz (2013).

⁷⁵ According to Abrantes-Metz and Bajari, there are four desirable properties of a good screen: (i) it should minimize the number of false positives and negatives; (ii) it should be easy to implement; (iii) it should be costly for agents to disguise such behaviour; and (iv) the screen should have empirical support. These elements will be discussed in the course of this paper (Abrantes-Metz and Bajari, 2012).

⁷⁶ Abrantes-Metz, 2013, and Abrantes-Metz (2011).

Box 3 - The importance of empirical support for screens

Most screens benefit not only from a solid theoretical support but also from empirical testing. It is quite typical for academic papers on screens to outline the economic theory underlying the proposed screen and then to test the proposed screen in real situations.⁷⁷ To provide empirical support for the use of the proposed screen, some authors demonstrate its application using data from markets which have been affected by cartels, e.g. markets which were the subject of a formal decision by a competition agency or a court.⁷⁸ In a number of articles, the proposed screen is subsequently applied to yet another market, or to a different subset of firms, in order to test whether that market merits further competition scrutiny.⁷⁹

Such an approach was adopted, for example, by Abrantes-Metz and others when they proposed a “price-variance screen” to detect likely collusive strategies in a given market.⁸⁰ Briefly, the authors based the proposed test on the theory that costs associated with the coordination of prices and the need to solve agency problems are likely to result in a lower price variance under collusion. They first referred to some theoretical and empirical studies pointing in that direction. They then test the screen with data on the supply of frozen perch to military installations, which was known to have been the subject of bid rigging. The main result was that under collusion, prices were much less varied than in periods before and after the cartel.⁸¹ Finally, the authors applied their price variance screen to the retail market for gasoline in Louisville, Kentucky, a market which had not been the subject of an antitrust investigation, and found that the screen results did not suggest collusive behaviour in that market.⁸²

The next paragraphs discuss some of the theoretical foundations which underpin behavioural screens developed in the economic literature.

Green and Porter proposed that periodic sharp price drops might indicate collusion.⁸³ Departing from the assumption that sharp price drops reflect the intrinsic instability of cartels, they developed a model where periodic price drops in colluding firms’ prices and profits may indicate that cartels are using price wars as a self-policing/self-enforcement device. They assumed that demand is uncertain, and that firms collude depending on whether or not the market price is above an agreed-upon “trigger” price. The alternative hypothesis of collusion is that output levels follow a switching process triggered by drops in the market price. Green and Porter applied their theory to the American rail freight industry in the 1880s and concluded that this was an industry that exhibited the kind of collusion that they modelled.

⁷⁷ E.g. Friederiszick and Maier-Rigaud (2008); Lorenz (2008). Summaries and reviews of some articles proposing specific screens appear in articles discussing the use of market screens generally. See e.g. Abrantes-Metz and Bajari (2012) and Harrington (2008).

⁷⁸ E.g., Lorenz (2008) and Conley and Decarolis (2013).

⁷⁹ E.g. Conley and Decarolis (2013).

⁸⁰ Abrantes-Metz, Froeb, Geweke and Taylor (2006). For a more detailed discussion see further below in Annex 1, Section 1.

⁸¹ Abrantes-Metz, Froeb, Geweke and Taylor (2006).

⁸² Similar exercises can be found in various academic papers. They are designed to provide both theoretical and empirical support for specific market screens. At the same time, this way of proceeding provides insights in other important issues concerning the use of screens by competition agencies, namely those touching on the ability to re-run the screen on a number of different markets, the human and data resources needed to implement the screen, and the costs and difficulties associated with evasion from detection. See, for example, Lorenz (2008). Conley and Decarolis (2013). Various papers on the on-going LIBOR case discussed below (see Annex 2, Section 3.3) also follow this general structure.

⁸³ Green and Porter (1984).

Rotemberg and Saloner studied pricing strategies of implicitly colluding firms facing fluctuating demand.⁸⁴ They concluded that a credible threat of future punishments provides the discipline that facilitates collusion. However, the temptation to unilaterally deviate from the collusive outcome is often greater when demand is high. To moderate this temptation in periods of high demand, colluding firms are likely to behave more competitively. This behaviour generates counter-cyclical price and margin movements, i.e. the collusive price and margin are lower when demand is high and higher when demand is low. Rotemberg and Saloner found that the railroads industry in the 1880's, the automobile industry in the 1950's were examples that supported their theory.

Athey, Bagwell, and Sanchirico suggested that prices that are rigid in the face of cost shocks could indicate collusion.⁸⁵ Their paper suggested that price rigidity can serve as a screen of collusive behaviour in an industry that satisfies certain structural assumptions. They considered an infinitely repeated Bertrand game, in which each firm is privately informed of its unit cost level in each period, where there is a continuum of possible costs, and cost levels are independently and identically distributed across firms. They showed that if firms are sufficiently patient and the distribution of firms' costs is log-concave, then optimal symmetric collusion in equilibrium is characterized both by price rigidity and the absence of price wars. They also showed that in competitive settings price varies more closely with cost. Their analysis suggests that cartels can be expected to lead to a reduction in the price variance as, for example, frequent adjustments of cartel agreements are costly and would complicate the detection of deviations from the cartel agreement. As a consequence, the transition from a competitive situation to a cartelised situation is characterized by a decrease in price variance (and vice versa).

Marshall, Marx, and Raiff analysed price announcements in the vitamins industry, with a view to detect collusion in the industry after 1985.⁸⁶ They found that price announcements during the cartel period, and the lead times before these prices took effect, were fundamentally different in character from price announcements when explicit collusion was less likely. Logit estimates showed that after 1985, the likelihood of a price announcement was largely driven by the length of time between announcements, rather than cost or demand factors, suggesting that price announcements after 1985 stemmed from cartel meetings. They modelled public price announcements in an industry with homogenous products and capacity constraints as a multi-period game and found that, relative to the pre-1985 period, announcements were made well in advance of effective dates in the collusive period. They also observed that the timing of price announcements in the collusive period was consistent with regularly scheduled cartel meetings. For these reasons, they concluded that the empirical implications of their model were largely consistent with the absence of explicit collusion in the vitamins industry prior to 1985, but consistent with the presence of explicit collusion after 1985.

Harrington and Chen studied a dynamic model of oligopoly with stochastic costs, in which a firm that forms a cartel is detected with some probability.⁸⁷ Their analysis characterizes collusive pricing patterns when buyers may detect the presence of a cartel. Buyers are assumed to become suspicious when they observe anomalous prices. They found that the cartel price path was comprised of two phases. During the transitional phase, price was generally rising and relatively unresponsive to cost shocks. During the stationary phase, prices responded to costs but were much less sensitive than under non-collusion or simple monopoly. In addition, compared to when firms do not collude, cost shocks take a longer time to pass-through to price. They concluded that a low price variance may be used as a collusive marker.

⁸⁴ Rotemberg and Saloner (1986).

⁸⁵ Athey, Bagwell, and Sanchirico (2004).

⁸⁶ Marshall, Marx, and Raiff (2008).

⁸⁷ Harrington and Chen (2006).

3.2.3 Collusive markers and structural breaks for designing screens

There are fundamentally two main steps to designing behavioural screens. First is to identify *collusive markers* which, according to theoretical and empirical literature, allow to distinguish behaviour which is consistent with competition from behaviour which can be explained by collusion. Second, is to look for *structural breaks* (e.g. a cartel price war) or *exogenous shocks* (e.g. a change in input costs) in the competitive process which can explain a change in firms' behaviour consistently with a collusive/competitive scheme.

3.2.4 Collusive markers – general remarks

Screens can be used to search for collusive patterns using pointers or indicia, often called 'markers', such as prices, quantities and market shares, or costs. Like doctors who are trying to diagnose a patient with an illness look for specific symptoms, cartel screens should be designed to detect symptoms of cartel behaviour. The Table below lists a number of price and non-price collusive markers that the literature has identified as relevant when designing behavioural screens.

Table 2 – Collusive markers for behavioural screens

Type of collusive marker	Description
Price	1 A higher list (or regular) price and reduced variation in prices across customers
	2 A series of steady price increases is preceded by steep price declines
	3 Price rises and imports decline
	4 Firms' prices are strongly positively related
	5 A high degree of uniformity across firms in product price and other dimensions including the prices for ancillary services
	6 Low price variance
	7 Price is subject to regime switches
Quantity	8 Market shares are highly stable over time
	9 There is a subset of firms for which each firm's share of total supply for that subset of firms is highly stable over time
	10 A firm's market share is negatively correlated over time

Source: Hüscherlath (2010), based on Harrington (2006).

Before discussing the collusive markers that are often used in cartel behavioural screens, it is worth emphasising that many markers (e.g. price parallelisms, stable market shares, low price variance, etc.) can be present even in non-collusive situations. This is to remind that the purpose of markers (and of screens) is to flag situations which could be consistent with collusion, but the final determination as to whether there is a cartel must be further investigated and actual evidence of collusion gathered by the competition agency.⁸⁸

3.2.4.1 Markers based on the analysis of prices

The purpose of any cartel is to raise prices above the competitive level. The analysis of prices therefore can provide very useful indications as to whether a cartel is possibly in action. Various price

⁸⁸

As Rey concludes, "[o]verall, while further research in this area is probably warranted, at the moment it appears difficult to rely solely on this approach to detect cartels." (Rey, 2006).

patterns may be the result of the forming or the breaking-up of a cartel, rather than the result of the normal competitive process. For example, in a number of cases cartels were formed after a rather sharp fall in prices; prices were then raised steadily by the cartel over the course of a number of years. If demand is not cyclical, such abrupt decline followed by a steady rise in price may be explained by collusion.⁸⁹ Abrupt price movements can also be associated with so called “regime changes”, which may result from cartels entering or exiting punishment phases,⁹⁰ or from “price wars” designed to discourage entry or to persuade a new entrant to join the cartel, etc. If a cycle of declining prices is followed by price increases, one might suspect that collusion has affected the market. In such cases, prior information on events which may have caused structural breaks may be helpful in focusing the analysis on the relevant timeframe and in interpreting the observable patterns.

A first group of price markers analyses movements in each firm’s own price:

- If a firm charges a high price that may, in some circumstances, be a symptom of a coordinated behaviour, particularly if associated with other commercial practices which one would not expect in a more competitive environment. This is, for example, the case of the adoption of a price list (as opposed to a variety of individually negotiated prices), the elimination of discounts and the simultaneous increase in prices by several suppliers. All these practices increase price uniformity which might be explained by the need to simplify the functioning and the monitoring of a cartel agreement.
- When price levels vary significantly across geographic areas that may be an indication that the market with the high price level may be affected by collusion.⁹¹
- Unless markets have a cyclical nature, sharp and steady price increases by individual firms following a steep price decline can be explained by the fact that the cartel was established as a reaction to an event which caused a sharp decline in prices (e.g. a weakened demand or excess capacity). These sharp price movements can be used to detect possible cartels in their formation phase.
- If a firm price increases and competitors imports decline, that could be an indication of the presence of a market allocation cartel. In these cases, competitors reduce their sales outside their “home market” and increase prices in their own market.

Other price markers focus on the analysis of the prices charged by different competitors:

- Parallel pricing behaviour, for example, can be an indication of explicit collusion in particular if price movements are simultaneous and of the same entity.⁹² This is the case, for example, of the identical bids submitted in response to a sealed-bid public tender.⁹³ For this reason, many empirical screens are designed to detect if competitors’ prices are strongly and positively correlated. The analysis of identical or highly correlated prices can also be accompanied by a high degree of uniformity of other terms and conditions, such as terms for ancillary or post-sale services.

⁸⁹ Harrington (2006).

⁹⁰ Harrington (2006).

⁹¹ ABA, 2010. This approach is implemented for example by the Dutch competition agency (NMa) in the framework of its Competition Index (see Annex 2, Section 1.1).

⁹² Rey (2006).

⁹³ See further in Section 3.3.1.

- Part of the literature has identified a relationship between price variance and competition, whereby price variance is low under collusion.⁹⁴ In a competitive setting, prices are volatile over time, while under collusion prices will vary less. Unusually stable prices are a characteristic of a cartelised industry. This is because if price variance is low it can be much easier for colluding firms to agree on uniform prices. Price uniformity also facilitates the monitoring of cartel members' behaviour. Hence, firms involved in cartels are also likely to reduce price variation across their different customers. This suggests that looking at the variability of firms' prices may provide useful indications about whether those price were set in a competitive or in a collusive context.
- Looking at price variability can also be useful to detect situations where the cartel has moved from a collusive phase to a punishment phase (usually associated with a fall in average prices) and then moves back to a collusive phase (with a rise in average prices). Behavioural screen can be designed to detect situations where prices are subject to regime switches and flag price movements which could reflect different phases of the life of a cartel.

Box 4 - Price markers in the Antitrust Primer of the U.S. Department of Justice

The United States Department of Justice published an "Antitrust Primer" as part of its efforts to encourage citizens to report any suspicions of antitrust law violation.⁹⁵ This publication provides the general public with a brief description of certain patterns or events which may indicate collusion. The Antitrust Primer identifies five pricing patterns as possible indicators of explicit collusion:

1. Prices stay identical for long periods of time.
2. Prices previously were different.
3. Price increases do not appear to be supported by increased costs.
4. Discounts are eliminated, especially in a market where discounts historically were given.
5. Vendors are charging higher prices to local customers than to distant customers. This may indicate local prices are fixed.

3.2.4.2 Markers based on factors other than price

Price is not the only variable that can be affected by collusion. Cartels for example can affect the quantities produced by the cartel members if the objective is to achieve market shares stability over time. Similarly, the cartel can exercise its power by limiting its members' production and therefore it may want to have some form of control over their individual production capacities. Or the cartel main objective may be to increase the overall profits of its members by gain supra-competitive rates of return. Behavioural screens can use these and other non-price variables to detect and flag situations which can indicate a lack of competition.

⁹⁴ See further in Annex 1, Section 1.

⁹⁵ United States, Department of Justice, *Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For* (<http://www.justice.gov/atr/public/guidelines/211578.pdf>)

A first group of non-price related markers analyses measures of *quantity*:

- Various cartel schemes lead to the stabilisation of market shares.⁹⁶ Hence, highly stable market shares over time can be used to detect the presence of a cartel. For example, agreements to allocate customers or geographic regions would tend to reduce variation in cartel members' sales.⁹⁷ There are cartels whose members explicitly agree that the working rule for the cartel is to maintain past market shares (i.e. the *status quo ante*), thus eliminating any fluctuation in market shares over time.⁹⁸
- A similar conclusion can be reached if a firm's market share is negatively correlated over time. In a competitive market, market shares of firms are expected to vary over time along with the firms' costs. If one observes a negative correlation between the market shares of one firm over time, i.e. an unexpectedly high market share in one period is followed by an unexpectedly low market share in the following period, that can be used as an indication of collusion. If a cartel agreement involves firms compensating one another, e.g. for sales in regions or to customers that were allocated to a different firm, then one might observe a negative correlation between a firm's market share over time.⁹⁹ There are some documented cartels where members agreed to changes in allotted market shares over time.¹⁰⁰

Other non-price markers rely on the analysis of *production capacities*:¹⁰¹

- Some cartels may induce output restrictions by reducing the cartel members' actual production capacities or by limiting their capacity expansion. Where data on capacities across time is available, a review of firms decisions on capacity expansion or investment may flag periods where competition is presumed to have prevailed.¹⁰²
- Similarly, the review of the utilisation rate of production capacity can provide insights on whether capacity utilisation has been affected by the existence of a cartel. In the long run, collusive equilibria tend to involve excess capacities.¹⁰³

Markers can also refer to firms *profits and rate of returns*.¹⁰⁴ This approach relies on the comparison between the actual performance of an industry and the performance that one would expect from 'normal' competition in a comparable industry. Markers based on supra-competitive performance include:

- Successful cartels can achieve an excess rate of return both during their formation phase and during the life of the cartel. The analysis to the rate of return of firms can be used as a screen for

⁹⁶ For a brief description of a theoretical model supporting this conclusion, see Harrington (2008) and Harrington (2006).

⁹⁷ ABA (2010).

⁹⁸ Harrington (2008).

⁹⁹ ABA (2010); Harrington (2006).

¹⁰⁰ Harrington (2008).

¹⁰¹ von Blanckenburg and Geist (2010).

¹⁰² ABA (2010).

¹⁰³ Benoit and Krishna (1985); Davidson and Deneckere (1990).

¹⁰⁴ von Blanckenburg and Geist (2010).

collusion, although many consider that a high price-cost margin (i.e. an excess rate of return) may not necessarily indicate collusion but may simply be an indication of market power.¹⁰⁵

- Another marker for collusion can be found in the correlation between rate of return difference and capacity growth rate changes. In a competitive market, it is normal to expect a positive correlation between an excess rate of return and capacity growth. If the excess rate of return is given, an increase of capacity growth rate is expected and vice versa. In cartel phases, when firms agree on their investments, independence of both indicators is expected. An increase in capacities during a cartel phase is expected only in growth markets, where positive demand shocks dominate.

Collusive markers can also relate to the analysis of *firms' cost and firm's efficiency levels*.¹⁰⁶

- Screen can detect possible collusion when price levels fail to reflect cost levels, or are not responsive to cost shocks. Empirical evidence show that in competitive markets price reflect more closely changes in costs.¹⁰⁷
- Because of the lack of competitive pressure, cartelization affects productivity negatively. A comparison of costs and efficiency levels can provide an indication as to whether firms cost and efficiencies are affected by their participation to a cartel.¹⁰⁸

¹⁰⁵ See discussion in Harrington (2008).

¹⁰⁶ von Blanckenburg and Geist (2010).

¹⁰⁷ Abrantes-Metz, Froeb, Geweke and Taylor (2006). In particular, for the analysis of the relationship between price and cost during competition and during the cartel period see Fig. 1.a in Annex 1 from the same article which illustrates the movements of prices and costs of frozen perch fillets during the cartel period, during the transition period from the cartel to a more competitive environment, and during competition. It shows that prices followed costs movements more closely under competition than under collusion, and that gross margins were higher under collusion.

¹⁰⁸ Empirical studies find a positive correlation between competition and firms' efficiencies. Primeaux (1977) estimated the effect of competition on the average costs of production of municipally-owned electric utility companies facing competition with the average costs of production of municipally-owned electric utility companies having monopolistic power. He found that the average costs of the municipally operated firms in duopoly markets were 10.75% less than the average costs for those facing no competition. Carlsson (1972) used an actual output (efficiency) index for 26 Swedish industries in 1968. He regressed this efficiency rating against several measures of product market competition. His general conclusion was that efficiency is positively related to the degree of foreign competition faced by Swedish industry. Bergsman (1974) found similar results for six countries. For a more in-depth overview on the evidence relating competition, and competition policy, to macroeconomic outcomes, such as growth, see the Secretariat paper "Factsheet on Competition and Growth" [DAF/COMP/WP2(2013)11] available at <http://www.oecd.org/daf/competition/productivity-growth-competition.htm>.

Box 5 - A note of caution on the use of profitability and cost measures

There is an extensive literature inviting competition enforcers to exercise caution when undertaking profitability assessments and drawing conclusions from them.¹⁰⁹ This literature emphasises two main limitations with a profitability analysis. First, conceptually, it is not well established what profitability analysis should be measuring, i.e. what is the relevant measure of profitability, and what is the most appropriate competitive benchmark. Second, profitability analysis raises various measurement and interpretation issues:

- Measurement issues: accounting data is normally the primary source of information for profitability analysis. However, companies rarely present such data in a way that it can be easily and readily used for economic analysis for competition policy purposes. Furthermore, accounting policies are far from uniform across companies and countries.
- Interpretation issues: even if profits could be measured, profitability figures can be difficult to interpret. For example, when are profits too high or too low, and what is the relevant time period to consider? And what should be the appropriate cost measure? Marginal costs or Long Run Marginal Costs? And even if high profits are found, are they due to market power or to superior efficiency?¹¹⁰

We should also add that using high profits as a measure of a potentially anti-competitive conduct would send distorted signals to the market and could have a chilling effect on competition. It is for these reasons that profitability measures are rarely used by competition agencies in enforcement cases, despite the fact that they could have (at least conceptually) a wide range of applications in various stages of a cartel, an abuse of dominance or a merger investigation. These applications could range from the definition of the relevant market and the determination of market power, to applications to specific abuse of dominance cases (e.g. excessive pricing,¹¹¹ predatory pricing and cross-subsidisation, margin squeeze cases), to the assessment of co-ordinated effects and failing firm defences in merger cases.

While the limitations with profitability measures raise particularly troublesome concerns if competition agencies were to rely on them to prove the existence of an antitrust infringement or of an anti-competitive merger, their use in screening programmes raises more limited concerns due to the fact that screens only aim at flagging situations which should then be properly investigated by the competition agency. That being said, profitability measures in screening programmes should be adopted with some caution. Rey, for example, points out the challenges with screens based on these types of markers. He notes that these screens require “*detailed data and analysis of costs and demand conditions (not only in the current situation but in the supposedly competitive one as well). This exercise is all the more difficult to realize in concentrated industries, which will often be subject to ‘imperfect competition’ anyway (that is, even a purely static, non-cooperative form of ‘normal’ competition would still yield significant price-cost margins and profits). More generally, this type of in-depth study requires deep knowledge and expertise about the industry, and it is more naturally associated with regulatory supervision than with the antitrust oversight.*”¹¹²

While it is beyond this paper to discuss the complexity of the use of profitability measures in competition policy and in enforcement cases, it should be emphasised that it would be unwise for competition agencies to rely *exclusively* on findings of high prices and excess profits to detect cartels. Profitability analysis, however, could be seen as one among a number of complementary economic indicators and techniques that agencies could use in a competition analysis. It is for this reason that this paper lists profitability and price/cost measures as possible markers for collusion. If available data indicates, among other things, that for example rates of returns have fluctuated significantly over time or that in a certain time period prices moved away significantly from any measure of cost, these are situations which could potentially be the outcome of a cartel activity. Further inquiries, however, would be necessary to ascertain that conclusively.

¹⁰⁹ Oxera (2003) and literature cited therein.

¹¹⁰ See discussion in Harrington (2008).

¹¹¹ OECD (2011).

¹¹² Rey (2006).

3.2.4.3 Identifying structural breaks and the appropriate benchmarks for screens

Identifying the appropriate marker(s) for screening markets is only the first step in effective screens design. Markers represent the basic elements for analysis but in order to flag possible collusion, markers need to be collected over time and then compared with an appropriate reference point. Benchmarking is the key to the ability of a screen to distinguish between collusion and competition. Finding events that have led to a distinct change (“structural break”) in how markets work can also be used to model and predict market performance or firms’ behaviour. Sometimes these events can be explained by the life of the cartel. Cartels form or break-up, and firm behaviour changes as a result of various events such as mergers, firms’ exit or entry, or perhaps even news reports.¹¹³ The central idea of identifying structural breaks is to establish a proper assessment of the counterfactual, that is, how the markets would perform “but for” collusion.¹¹⁴ If markers focus what is the relevant for distinguishing competition from collusion, here the focus is on finding changes and breaks in market outcomes, not necessarily on the outcomes themselves (e.g. high prices vs. low prices).

Benchmarks can be of different nature, and can rely on observations based on one (or more) of these factors:

- Different timeframes - Many screens compare firms behaviour and market outcomes across various timeframes.¹¹⁵ A common regression model used to analyse allegedly collusive markets is a “before-and-after” regression, which compares prices over time. Data for the same market but from different time periods can serve as a reference point, assuming that data covers both the collusive and non-collusive periods.¹¹⁶ If prices are similar before and after the allegedly collusive period, this may be an indication of collusion. For this analysis to be reliable, however, economists must control for demand and supply factors that might have changed over time, so that the model presents a valid comparison of prices even if market conditions are changing.¹¹⁷
- Different product markets - A price series and its properties can be compared with those of other products in a similar industry, which are not under suspicion of possible cartelisation. These “yardstick” models compare prices among collusive and non-collusive markets during the same time period. Again, models must control for differences in market conditions between the test and

¹¹³ See Friederiszick and Maier-Rigaud (2008) for a detailed discussion of the types of critical events that one can detect during the life of a cartel, from its start-up phase and its life span to its breakdown.

¹¹⁴ According to Friederiszick and Maier-Rigaud, to identify these critical events, “two questions based on the information collected in the industry analysis have to be addressed: (1) Is it possible to identify exogenous shocks that result in different reactions in a cartelized versus a competitive environment? (2) Is it possible to observe structural breaks that cannot be explained along the lines of a competitive environment?” (Friederiszick and Maier-Rigaud, 2008).

¹¹⁵ For example, as shown by Abrantes-Metz, Froeb, Geweke & Taylor (2006), price variance for frozen perch fillet was significantly higher and prices were lower in the periods before and after the cartel was operational.

¹¹⁶ E.g., Friederiszick and Maier-Rigaud (2008); Harrington, (2008). For practical implementation, see, e.g. Abrantes-Metz and Metz (2012). See also the discussion on the importance of information on “the beginning and the ending date of conspiracies” in Bolotova, Connor and Miller (2008). It is, however, very important to note that in some cases it may be difficult to observe distinct changes as a result of cartel formation, break-up etc. For example, if cartel members are weary of detection, they may agree to conceal the structural break by raising their prices gradually to a steady-state level or even by raising them gradually and then letting them decide to such a level. See Harrington (2004).

¹¹⁷ ABA (2010).

the benchmark market. Alternatively, a price series from one specific industry can be compared against a large number of other industries at the same time, on the basis that it is unlikely that all the benchmark industries are subject to cartelisation.

- Different geographic markets - In some cases, it may be possible to identify markets which are comparable with the market subject to screening, i.e. they constitute a separate market but may share similar general dynamics. Where firms behaviour or market outcomes in the market under screening are different from those observed in a market known to be competitive, that may be indicative of collusion.¹¹⁸

In situations where data is not available over a period of time which covers both the collusive and non-collusive period, or where an external observer cannot identify a structural break for the benchmarking exercise, another approach can be followed. This is to model firm behaviour or market outcomes in a particular market, based on theories of what competitive or collusive equilibriums would look like in that same market. Observations on the market can then be compared with the predictions of the model, and where inconsistencies occur, further scrutiny may be warranted.¹¹⁹ For example, in public procurement markets where the distance from the firms' consumers is strongly correlated with costs, it is reasonable to predict that, in normal circumstances, firms located at a great distance from a worksite would refrain from submitting bids. It follows that suspicions may rise if distant firms' behaviour is inconsistent with this prediction. One possibility is that these firms are submitting so called "complementary bids" designed to create a perception of competition, while in reality the designated winning bid is artificially inflated.

3.3 *Empirical screens for bid rigging conspiracies*

Detecting bid rigging conspiracies has been a fertile ground for the development of behavioural screens. The richness of data available on public tenders has allowed economists and competition agencies to develop several screens and offered the opportunity to test them empirically. The fact that bid rigging cases represent a significant share of cartel enforcement in many jurisdictions has also facilitated the definition of collusive markers for the design of the screens.

3.3.1 *Markers for bid rigging conspiracies*

Screens to detect bid rigging are based on specific markers that competition agencies and researchers have identified over time. These are bidding patterns that are commonly found in bid rigging cases. Markers relate to different variables, such as the finding of improbable events in the bidding process or the statistical analysis of the bidding behaviour of the various bidders when they bid one against the other. In general, there are two types of intuitions underlying bid rigging screens:

- First, that in a competitive tender process, bids should be submitted independently. If a cartel is at work, bids will show signs of co-ordination between the bidders. If bids are "too correlated" this can be explained by collusion.
- Second, bids submitted by independent competitors should reflect appropriately the costs of each bidder in a competitive market.

¹¹⁸ For example, heavy commodities that are rarely transported long distances, such as ready-mixed concrete, can be analysed in this way (Oxera, 2013).

¹¹⁹ E.g. Porter and Zona (1999) discussed further in Annex 1, Section 2. Note, however, that Porter and Zona base their predictions and their analysis of the cartel in the Ohio milk market not only on theory, but also on data from control groups.

Based on these two criteria, economists have developed a number of screens to detect possible bid rigging conspiracies. These screens will be discussed in more detail in Annex 1, but here we list the main markers on which they often rely.

A first improbable event in a market where competition works effectively is when bidders submit identical bids.¹²⁰ While it may seem unlikely that bidders who are involved in an illegal conspiracy would submit the same bid, many bid rigging cases have been flagged to competition agencies by procurement officials who have detected identical bids submitted by allegedly competing bidders.¹²¹

Another collusive marker that is often used to detect possible bid rigging conspiracies is a high correlation between bids, after controlling for costs and market power variables.¹²² Often correlation across bids is significantly higher among bids in one particular market than across bids in another comparable market. In this case, if the differences in correlations cannot be explained by observable differences in market conditions, then it is possible that this can be explained by coordinated behaviour among bidders in the first market. The higher the degree of correlation and its persistence over time, the more likely it is that the correlation can be explained by coordination among bidders.

Another set of markers looks at the existence of a disconnect between the bid and the underlying costs of the bidder. When firms collude, the relationship between bids and cost is broken, as conspiring firms will aim at achieving supra-competitive profits. If, for example, distance is a competitive variable in the market, bids should be an increasing function of distance owing to transportation costs (everything else being equal). Similarly, bids submitted by a given firm should reflect the engineering cost estimates of that same firm. If holding all else equal, a firm submits a higher bid for a contract with a lower engineering cost estimate than for one with a higher cost estimate, that could indicate a pattern of bids that is consistent with collusive activity.¹²³ The analysis can be made by comparing bids submitted by the same bidder in similar market situations or tenders, or by comparing bids of different bidders in markets with similar competitive conditions.¹²⁴

A third set of markers points at unexpected and significant differences between the winning and the losing bids. Of course, differences can be explained by legitimate reasons. However, in a competitive environment one would not expect significant differences between competitors. If, once discounted factors that can be relevant for the winning bid, there are still significant differences between the bids submitted by the winning bidder and the others participants, which can be a sign that collusion materially affected the competition in the tender process.

3.3.2 *National and international guidelines for detecting bid rigging in public procurement*

Many national competition agencies and international organisations have used these markers to adopt guidelines for procurement officials that can help them detect unusual bidding patterns or behaviour. These

¹²⁰ Abrantes-Metz and Bajari (2012).

¹²¹ In a well known bid rigging case in the market for electrical appliances in the 1950s in the United States, seven bidders had submitted the same identical bid to the cents (USD 198,438.24) in a sealed-bid tender process. The chances that this event would occur if the bidders did not coordinate their bid is close to zero.

¹²² Porter and Zona (1999); Porter and Zona (1993).

¹²³ NERA (2010). A similar test can be developed for capacity utilization based on the idea that, holding all else equal, one would expect firms to bid more aggressively for contracts when they have idle capacity.

¹²⁴ Bajari and Ye (2003).

guidelines have been quite successfully disseminated and implemented in various jurisdictions.¹²⁵ They typically provide a list of suspicious behaviour or patterns that may be indicative of bid rigging, and encourage procurement officials to report their suspicions to the competition agency.

Box 6 - The OECD Guidelines for Fighting Bid Rigging in Public Procurement

The OECD Guidelines on Fighting Bid Rigging in Public Procurement, for example, were adopted by the Competition Committee in 2009, are now included in the 2012 OECD Recommendation on Fighting Bid Rigging in Public Procurement.¹²⁶ The Guidelines include a specific checklist on how to detect bid rigging during the procurement process. The checklist recommends that procurement officials remain vigilant for:

- warning signs and patterns when businesses are submitting bids (e.g. the same supplier wins all tenders);
- warning signs in tender documents submitted (e.g. identical mistakes);
- warning signs and patterns related to pricing (e.g. large differences between the winning bid and other bids);
- suspicious statements (e.g. spoken or written references to an agreement among bidders); and,
- suspicious behaviour (e.g. suppliers holding regular meetings).

According to the Guidelines, “*odd patterns in the ways that firms bid and the frequency with which they win or lose tender offers*” and various subcontracting or undisclosed joint venture practices may indicate bid rigging. Suspicions may arise for example when “[*t*]he same supplier is often the lowest bidder,” “[*r*]egular suppliers fail to bid on a tender they would normally be expected to bid for, but have continued to bid for other tenders,” “[*s*]ome suppliers unexpectedly withdraw from bidding,” “[*e*]ach company seems to take a turn being the winning bidder,” “[*t*]he winning bidder repeatedly subcontracts work to unsuccessful bidders”, etc.

Clues of bid rigging may appear on documents submitted by bidders. For example, “red flags” may be raised if “[*b*]ids from different companies contain similar handwriting or typeface or use identical forms or stationery”, “[*b*]ids from different companies contain identical miscalculations”, “[*t*]he packaging from different companies has similar postmarks or post metering machine marks” or if “competitors submit identical tenders or the prices submitted by bidders increase in regular increments.”

Suspicious pricing patterns, such as “[*s*]udden and identical increases in price or price ranges by bidders that cannot be explained by cost increases,” “certain supplier’s bid [*being*] much higher for a particular contract than that supplier’s bid for another similar contract”, or if “[*t*]here are significant reductions from past price levels after a bid from a new or infrequent supplier, e.g. the new supplier may have disrupted an existing bidding cartel”, may also be cause for concern.

The same applies to suspicious statements, whether written or spoken, which for example make “*references to an agreement among bidders*”, “*justify their prices by looking at ‘industry suggested prices’, ‘standard market prices’ or ‘industry price schedules’*”, or indicate “*that a supplier submitted a courtesy, complementary, token, symbolic or cover bid.*”

Finally, procurement officials ought to be alerted by suspicious bidders’ behaviour. If, for example, “[*s*]uppliers regularly socialize together or appear to hold regular meetings”, or “[*a*] company requests a bid package for itself and a competitor,” or “[*a*] company submits both its own and a competitor’s bid and bidding documents etc.,” they should notify the competition agency of their suspicions.

¹²⁵ See e.g. United States Department of Justice, *Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For* (<http://www.justice.gov/atr/public/guidelines/211578.pdf>); Konkurrentsverket – Swedish Competition Agency, *Honesty Pays! How to Detect and Give Tip-Offs About Bid-Rigging Cartels in Public Procurement* (http://www.kkv.se/upload/Filer/ENG/Publications/Honesty_pays.pdf).

¹²⁶ The OECD Recommendation and the Guidelines can be found at <http://www.oecd.org/daf/competition/fightingbidrigginginpublicprocurement.htm>.

National and international guidelines to detect bid rigging are an interesting example of how screens can be used without incurring in some of the limitations and costs that will be discussed in the next Section. Bid rigging detection guidelines are addressed to procurement officials and at least part of the pro-active detection effort is outsourced to them. They are asked to flag possible bid rigging conspiracies by detecting possible sign of collusive behaviour.¹²⁷ This has enabled competition agencies to overcome some of the limitations of market screens and the difficulties associated with their implementation: first, through the dissemination of guidelines and the training to a large amount of public procurement officials, competition agencies may be able to have multiple markets screened, for a reasonably low cost. Second, procurement officials are likely to have better information on the functioning of the market and the activity of firms than economists running screens at the competition agency; such information may be crucial for effectively monitoring the market and also for limiting the number of false positives and negatives. In particular, because procurement officials interact with bidders directly, they are able to observe behaviour or notice statements which are not recorded in the documents submitted by the bidders, and may be outside the direct reach of the competition agency.

3.4 *Challenges posed by the implementation of cartel screening programmes*

Systematic market screening is part of few competition agencies' anti-cartel enforcement programmes.¹²⁸ Many competition agencies, including some of the better funded and more established agencies, are reluctant to implement screens which require complex economic analysis of data, relying instead on other tools that they consider a more effective and a more efficient use of their resources.¹²⁹ Competition agencies' perceived reluctance to allocate the necessary resources for developing, implementing and regularly running a pro-active screening programme can only be partially explained with the success of amnesty/leniency programmes. Indeed, intrinsic limitations and challenges associated with the adoption of empirical screens has also contributed to the limited use so far of screens as a detection tool.

3.4.1 *Screens do not provide sole and sufficient proof of cartelisation*

While screens can be very useful to identify and flag unusual patterns in market outcomes, screens will not provide sole and sufficient proof that any wrongdoing did take place. Generally, the main purpose of screening is not to deliver the final evidence based on which colluders will be convicted, but instead to identify markets where empirical red flags are raised and which are worth of further investigations.¹³⁰ In doing so effectively, screening results will induce cartel members to come forward and file for amnesty/leniency, and they will also assist in deterring cartel formation in the first place. However,

¹²⁷ It is however important to note that while procurement officials may be trained to raise red flags, they do not necessarily develop expertise in detecting cartels, nor is that their main duty. Procurement officials may therefore fail to detect cartels or may lack incentives to report suspicions to the competition agency.

¹²⁸ See, for example, the Korean BRIAS system for bid rigging detection and the U.S. FTC gasoline prices monitoring programme, both discussed in Annex 2.

¹²⁹ ICN (2010), reporting for example that "[...] the Antitrust Division of the US DOJ does not use economic tools or data to attempt to detect cartel activity. Such efforts in the past have not proven fruitful and the US DOJ does not believe that such efforts are a good use of its resources." This approach is confirmed by the U.S. submission to this roundtable which concludes that "[...] DOJ has employed several methods for cartel screening and found that those methods did not produce solid leads for cartel investigations. At this time, the DOJ has no plans to redeploy investigative resources into screening for indications of cartel activity." [DAF/COMP/WD(2013)117].

¹³⁰ There are cases, however, where the results from screens have been used by agencies in courts as part of the evidence brought to support their case. The Mexican example discussed in Annex 2, Section 2.1 is an example where courts concluded that the results of the screening exercise were sufficient to prove the illegal conduct.

agencies will still have to go through the verification and prosecution/investigation phases before a final cartel decision can be adopted. Structural screens in particular can be useful to identify markets and industries where collusion *could* take place, but they cannot be used to determine if cartelisation has actually taken place in one of those markets. They are just a first step that requires further investigation into firms' behaviour (e.g. through the implementation of a behavioural screen) and then an actual investigation to collect the evidence that courts require to prove the standard for cartelisation.

3.4.2 Screens can generate false positives and false negatives

Cartel screens can produce false positives (flagging cases which do not merit further scrutiny) or false negatives (failing to identify collusion in a particular market) and this is something that competition agencies should be aware of when deciding whether to implement a cartel screening programme.¹³¹ While minimising both types of errors is a priority for screen developers, it seems that the risk of screens failing may be inherent or very difficult to minimise in certain cases. Economic models and assumptions upon which a particular screen is based greatly influence the probability of that screen producing either type of errors.¹³² For example, a structural screen designed to flag markets which show the traits that, in theory, are likely to increase the probability of collusion is inherently likely to produce false positives,¹³³ for the simple reason that the *propensity* for collusion is not an indication that an anti-competitive behaviour has *actually* taken place. Such screens, while perhaps more simple to implement, provide only limited guidance to competition agencies seeking to initiate independent *ex-officio* investigations.

Conversely, a behavioural test narrowly tailored to fit a specific market setting, such as an auction characterised by distinctive rules,¹³⁴ will only be useful for the circumstances for which it was designed. Applying the same test to other settings may not necessarily produce the correct results, if the screen for example is based on assumptions which do not apply to this second situation or accounts for specific market characteristics which are not present in the second setting.¹³⁵ In such cases, the indicators used to detect collusion in a specific market may either be inconsistent with collusion in the second market, or consistent with both competition and collusion in said market. For specified screens to function properly in a given market, screen designers may require a certain amount of information on the functioning of that market, on the various possible competitive or collusive equilibriums therein, etc.¹³⁶ So even if one assumes that competition agencies have sufficient and accurate data to run screens, screens may fail as a result of design flaws. While it may be possible to reduce the probability of screens failing by adapting the

¹³¹ See remarks by Oliver Guersain and Julian Joshua of the European Commission, in European Competition Law Annual (2006).

¹³² See generally ABA (2010).

¹³³ Harrington (2008). False negatives are also an issue for structural screens: enforcement record from around the world shows that cartels form and prosper for many years also in markets which do not exhibit any of the structural characteristics which are considered to make markets more prone to cartelisation.

¹³⁴ See for example Conley and Decarolis (2013) "bid test" developed in the context of "average bid auctions".

¹³⁵ For example, a screen used to detect a bid-rigging conspiracy may be limited in its capacity to detect other types of collusive activity. See Bolotova, Connor and Miller (2008) (discussing Abrantes-Metz, Froeb, Geweke and Taylor, 2006).

¹³⁶ E.g. ABA (2010); Bolotova, Connor and Miller (2008); Doane, Froeb, Sibley and Pinto (2013). For examples of indicators which are consistent with either competition or collusion, see, e.g. Rey(2006). Another interesting issue to consider in screen design and model specification is that screens are based on economists' current knowledge of cartels, which may be naturally biased due to the lack of information on the characteristics of cartels which have been able to conceal their actions.

model and underlying assumption to any given market, this may prove costly, especially for competition agencies seeking to systematically screen a large number of markets.¹³⁷

The fact that empirical screens may fail and generate false positives/negatives should not necessarily discourage competition agencies. One option to minimise errors is running screening programmes which employ a series of tests, rather than using a single test.¹³⁸ Concerning the risks of false positives, empirical screens are generally not intended to serve as sole and sufficient evidence that illegal conduct has occurred, but as a starting point for competition agencies to pro-actively seek out cartels. If competition agencies are aware of the possible shortfalls of screens and consequently are careful about interpreting their results, they should seek to reduce the likelihood of false positives in any final decision. As for false negatives, failure to detect cartels may indeed be costly. However, an empirical screen that fails in one particular market, does not necessarily fail in other markets. In addition, screening is intended not only to directly detect cartels, but also to maximise incentives for leniency programmes and to increase deterrence levels. Therefore, empirical screens which produce some false negatives may still contribute to cartel deterrence and desistance if they succeed in putting cartelists off and causing them to desist from their activities, or to apply for leniency.

3.4.3 *Screens fail to distinguish explicit from tacit collusion*

A specific type of false positive may result from screens' apparent failure to distinguish between different types of collusion, i.e. between situations of explicit and tacit collusion. Collusive equilibria may be attained and maintained through explicit communications and agreements, which are generally considered *per se* illegal, but also through "conscious parallelism" and therefore without firms having to engage in any sort of illegal behaviour. Empirical screens will often focus on market characteristics and outcomes, or on firm behaviour, which may be observable both in cases of explicit and tacit collusion. In such instances, screens would be incapable of distinguishing between legal and illegal activity.¹³⁹ In other words, the risk of this specific type of false positive (i.e. the detection of the "wrong" type of collusion) is almost inherent to screening.

¹³⁷ For example, according to Harrington, one argument against using a price-cost margins as an indicator of collusion is due to the considerable variation in such margins across different industries, which can be explained by many factors other than collusion (Harrington, 2008).

¹³⁸ E.g. Lorenz (2008).

¹³⁹ Harrington (2006); Friederiszick and Maier-Rigaud (2008).

Box 7 - Can screens distinguish tacit from explicit collusion?

There can be particular circumstances where screens can actually distinguish between explicit and tacit collusion, for example where the outcome detected by the screen is highly unlikely unless it is the result of an explicit coordination.

Abrantes-Metz and Metz,¹⁴⁰ for example, attempted to determine how far screens can go in distinguishing explicit from tacit collusion. In doing so, they considered evidence from the LIBOR setting and in particular the coefficient of variation (across banks) in daily LIBOR quotes for a cross section of the participating banks. They found that there was almost no variation across the quotes submitted by the banks from early August 2006 through early August 2007, becoming abruptly positive thereafter. They were expecting that if all banks were submitting unique quotes each day (which happened to average to the same level day after day), the coefficient of variation should be larger.¹⁴¹

To exclude tacit collusion between the banks, Abrantes-Metz and Metz also analysed the individual LIBOR quotes from the banks and saw that the banks submitted the same quote day after day and that they were submitting a common but different quote the next day.¹⁴² This evidence excluded that banks were “learning” and “reacting” to the strategy of the other banks to converge toward that common quote.¹⁴³ The authors concluded that *“given that quotes are submitted sealed, the likelihood of banks moving simultaneously to the same value from one day to the next without explicit coordination is extremely low, particularly given that their idiosyncrasies would not imply completely identical quotes under a non-cooperative outcome. And it is difficult to attribute it to tacit collusion or strategic learning, since the change is abrupt, the quotes are submitted sealed, and the quotes themselves sometimes change from one day to the next in an identical fashion. It would seem that explicit collusion is more likely to be the cause. Only time, and careful investigation, will answer definitively.”*

3.4.4 Screening as a data-intensive activity

Sufficient, relevant and accurate information and data are necessary for all stages of screen implementation, from screen design, to the implementation of the screen, up to the interpretation of its results. Accessing this information is a key issue in any empirical methodology and subjects screens to a serious risk of failure if gathering the necessary information reveals the on-going agency scrutiny to cartel members.¹⁴⁴

The correct specification of the economic model on which a screen is based may require information on the functioning of the industry or market to be examined. For example, firms’ distance from their clients is used in some models as a measure of costs,¹⁴⁵ while distance may be irrelevant to the analysis of other

¹⁴⁰ Abrantes-Metz and Metz (2012).

¹⁴¹ The lack of variation between the LIBOR quotes could not be explained by identical borrowing costs. The banks considered differ significantly in terms of their characteristics and borrowing costs (i.e., they have asset portfolios of varying risk, varying liability structures, and participate to different degrees in different market segments).

¹⁴² Note that the individual bank quotes are submitted in sealed envelopes and are made public only after the LIBOR is computed.

¹⁴³ This evidence used to support this analysis is reproduced in Annex 2, Section 3.3 of this paper, which discusses the application of screens to detect possible manipulation of the LIBOR index.

¹⁴⁴ Most agencies that use screening techniques partially addresses these concerns by basing the exercise on data available through public sources, such as industry reports or official databases, to the extent possible.

¹⁴⁵ E.g., Porter and Zona (1999).

types of industries (e.g. industries based on on-line distribution systems). Overlooking such information may lead the screen to fail. Screens may also be quite sensitive to the quantity and quality of the data used as input.¹⁴⁶ For example, running a price-variance screen¹⁴⁷ on aggregated data (e.g. average yearly or monthly prices) found in market studies may lead to completely different results from running the same screen on disaggregated data (e.g. daily quotes).¹⁴⁸ Furthermore, data obtained directly from firms may be more accurate and reliable than publicly available data appearing in the media, market studies, etc. but may not be available to the competition agency.¹⁴⁹ Finally, lack of information on the market may lead to the misinterpretation of the screen results. For example, a screen may identify patterns consistent with collusion between two sister companies; if the competition agency lacks information on the joint ownership of these firms, the results may be misleading.

Because failure to meet data requirements may cause a screen to fail,¹⁵⁰ the issue of data collection raises several questions. Lack of data might discourage the use of screens altogether, as data collection may be time consuming and resource intensive, or may result actually impossible. Another source of complication could result from the fact that attempts to collect the necessary information may sometimes alert conspirators of the competition agency's intention to investigate that particular market, causing them to make conscious efforts to conceal any direct or indirect evidence of the cartel. It may be worth mentioning that a competition agency may also be misled where it relies on data published by conspirators who have an interest in concealing their illicit behaviour. Some scholars address this issue by suggesting that competition agency use screens which require easily available data as input, as it is for example the case of screens to detect bid rigging conspiracies.¹⁵¹ This approach, however, may at times lead to false negatives, because easily available data are often aggregated. In addition, screens based on easily available data such as prices may fail to take account of many factors, such as costs, demand shocks, etc., which affect firms' behaviour and market outcomes.

3.4.5 *Screening as a resource-intensive activity*

Implementing a screening programme may require extensive human resources with specific skills and know-how. The mere existence of resource costs, however, should not be an argument against the use of screens as such. Competition law enforcement requires extensive resources, and prosecuting a case requires many more resources than any typical screen. But we still advocate for effective enforcement. Agency, however, should be aware that developing or adapting an existing screen for the use by a competition agency may in some cases require special expertise, for example in the field of econometrics. Data collection and processing, training personnel, running the screen, interpreting results and finally following up on the leads provided by the screen, may also be quite burdensome and may be expensive also in terms of opportunity costs.

¹⁴⁶ It is not a coincidence that many screens were developed using bidding data from public procurement tenders. The richness of the public procurement data and their quality, makes the design and testing of empirical screens for bid rigging detection easier.

¹⁴⁷ Such as the one proposed by Abarantes-Metz Froeb, Geweke and Taylor (2006).

¹⁴⁸ E.g. Esposito and Ferrero (2006).

¹⁴⁹ Moreover, requesting such information from companies may tip them off to the existence of an investigation.

¹⁵⁰ According to Abrantes-Metz one of the golden rules for screens is based on the principle "garbage-in-garbage-out". This rule states that, as is always the case in empirical work, a screen is only as good as the data on which it relies for its analysis (Abrantes-Metz, 2011).

¹⁵¹ Harrington (2008) who also suggests that competition agencies actively collect high-frequency price data.

To illustrate this point, consider once again a structural screen of the type designed to flag industries prone to collusion. This screen may be simpler to implement than highly specific screens. However, such structural screens tend to produce false positives; competition agencies may therefore require additional resources for following up on flagged markets to investigate further if cartel activity is likely to take place on that market. Conversely, highly specific models designed for specific industries may produce fewer false positives, but their implementation may be far more complex in terms of developing or adapting the screen, training personnel, collecting the necessary data and interpreting the results.¹⁵²

3.4.6 *The risk of firms evading screen detection*

Another concern about screens relates to the conspirators' ability to evade detection by adjusting their concerted behaviour in a manner which would enable them to "beat" the screen. This can happen especially when information regarding the competition agency's general approach and screen methodology is publicly known.¹⁵³ For example, if competition agencies search for "structural breaks" in pricing patterns, cartels may avoid detection by increasing prices moderately (and thus lose some measure of supra-competitive profit), in order to conceal the "regime change" from competition to collusion in the market.¹⁵⁴ This is for example what happened with the U.S. DOJ programme to detect suspicious public procurement tenders based on the so-called "Identical Bid Unit" programme. Bidders alerted to the existence of the screening programme took the necessary countermeasures to avoid detection by submitting very similar but not identical bids, and the programme was consequently discontinued.

Scholars address these concerns, first, by suggesting tests which would be difficult, costly and dangerous for cartels to beat.¹⁵⁵ Ideally, beating screens would prevent firms' from profiting from the conspiracy they are part of (e.g. by forcing conspirators to mimic competition and charge a competitive price) or would significantly raise the probability of detection (e.g. by forcing conspirators to communicate or meet frequently in order to coordinate their action).¹⁵⁶ Second, keeping the specific design of screens employed by competition agencies secret may prevent some cartels from beating the tests.¹⁵⁷ Finally, there is a possibility that some "naive" cartels may fail to beat even simple tests.¹⁵⁸

4. Conclusions

This paper has tried to answer two fundamental question that competition agencies ask themselves in their daily work: where and how to look for cartel activity?

While amnesty/leniency programmes have successfully mushroomed in many jurisdictions and have provided a unique impetus to global cartel enforcement, many have suggested that relying on reactive detection tools exclusively is not a sound cartel policy, and that amnesty/leniency programmes should be

¹⁵² In this regard it may be interesting to note that the U.S. FTC's programme for monitoring gasoline and diesel prices (see Annex 2, Section 1.3) has been subject to criticism for its resource intensiveness. According to one commentator, duplicating such a programme and implementing for monitoring other industries is not feasible. See remarks of Thomas Barnett and William Kovacic, in European Competition Law Annual (2006).

¹⁵³ E.g., Friederiszick and Maier-Rigaud (2008); see also remarks by Patrick Rey, in European Competition Law Annual (2006).

¹⁵⁴ Harrington (2008).

¹⁵⁵ E.g. Abrantes-Metz, Froeb, Geweke and Taylor (2006).

¹⁵⁶ Harrington (2008).

¹⁵⁷ Laitenberg and Huschelrath (2011).

¹⁵⁸ Harrington (2008).

combined with more pro-active techniques to flag markets and situations where collusion may be at work. Reactive detection would not just increase the number of cartel cases uncovered by competition agencies but would increase incentives of firms to enter into amnesty/leniency programme, increasing cartel deterrence and desistance overall.

Among reactive detection tools, the use of economic analysis to detect markets structures, behavioural pattern and outcomes which can be consistent with collusion can prove particularly promising. The economic literature has developed screening techniques which can be used by competition agencies to enhance the deterrent effect of their enforcement action and provide even stronger incentives to firm to enter into amnesty/leniency programmes.

Empirical screens for cartel detection can have an important role in cartel enforcement: they flag possible situations of collusion which should be subject to further verification and possibly prosecution/investigation by the competition agency. The economic analysis can contribute to effective cartel enforcement. However, it only helps flagging “suspicious” behaviour which is only a first step in the identification of actual cartel conduct. This initial detection activity must be supplemented by other evidence before a final determination on the infringement of the competition rules can be made. For this reason, screens generally complement other reactive and pro-active detection tools which help agencies to access actual evidence of collusion.

A sound approach to cartel detection through the use of economic screens should include both a structural assessment of industry sectors in an economy to flag industries which are more prone to collusive practices and a behavioural analysis of individual firms’ behaviour and market outcomes. This in-depth behavioural screening of those industries which have been flagged as “at risk” by the initial structural assessment will help focussing resources on cases to be fully assessed by the competition agencies through traditional reactive tools (such as amnesty/leniency programmes) and/or other investigative tools (such as dawn raids, interviews, and information requests) to obtain evidence of the anti-competitive conspiracy.

Screens are subject to a number of limitations. Some of them are intrinsic to the nature of screens (e.g. they generally do not provide actual evidence of cartelisation, and they generally do not distinguish tacit from explicit collusion). Others important limitations relate to the resources and skills required to run screening programmes on a regular basis. Access to data and information also represent a serious challenge to screening in situations where reliable data is not easily accessible. Because of these limitations and of the success of amnesty/leniency programmes, most competition agencies seem to remain quite sceptical about implementing systematic empirical screening programmes. The ICN survey summarises this point by noting that “*[m]ost agencies, including well-established agencies, do not use economic tools or data to detect cartels, relying instead on other tools they consider more effective and a more efficient use of their resources.*”¹⁵⁹

As screening methods become more robust and easier to implement, it is likely to expect an increased use of screens by competition enforcers. Competition agencies’ positive experiences with empirical screening may also change perceptions of competition agencies towards screening programmes.¹⁶⁰ Some scholars emphasise the value of information on discovered cartels gathered by competition agencies, as such information may provide insight into the inner workings of cartels, and may prove quite useful in the design of better screens in the future. Future academic research may also yield additional methods for distinguishing between (illegal) explicit collusion and (legal) conscious parallelism, which is one of the main limits of screens. Finally, the effect of screens on deterrence is sometimes underestimated. Even if it is difficult to accurately quantify this effect, it is important to recall that the number of cases brought by a specific enforcement programme is not necessarily the right criterion (or the only criterion) for assessing its efficacy.

¹⁵⁹ ICN 2010.

¹⁶⁰ See further Annex 2.

ANNEX 1. EXAMPLES OF BEHAVIOURAL SCREENS DEVELOPED IN THE LITERATURE

This Annex offers an overview of the main behavioural screens developed in the empirical literature. This literature is grouped into four categories: (i) screens based on price/bid variance; (ii) screen based on the analysis of anomalous bidding; (iii) screens based on variables other than price; and (v) screens to detect manipulations and fraud other than anti-competitive cartels.

1. Examples of cartel screens based on price/bid variance

Among the collusive markers suggested in the literature,¹ price-related markers are among the most frequently used to design empirical screens. These typically include prices higher than expected average prices; changes in prices that cannot be explained by demand and/or cost movements; lower responsiveness of prices to costs; reductions in price variations across customers; prices that are strongly and positively correlated across firms or entities; a high degree of price uniformity across firms. This section will review some examples of screens based on the analysis of price/bid variations.

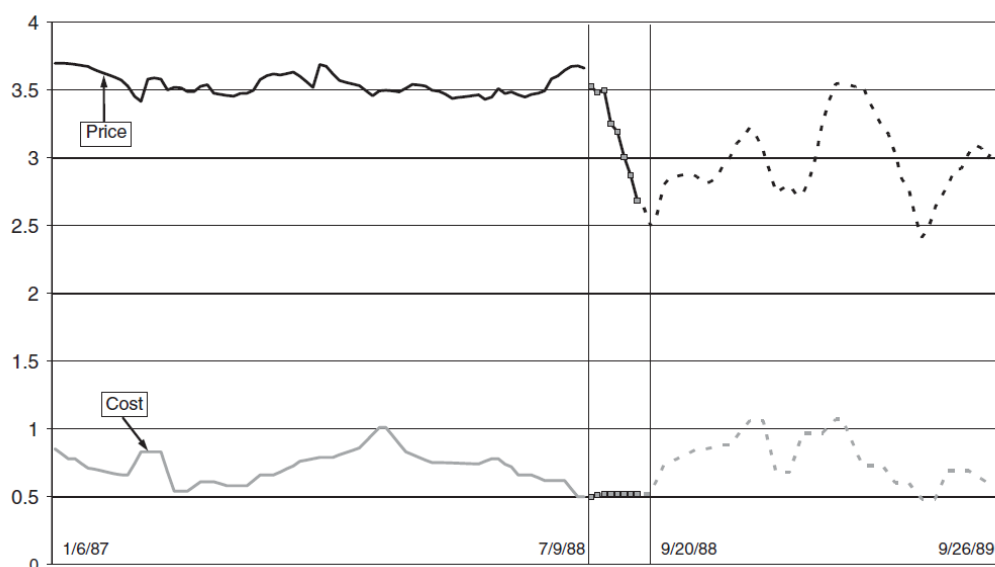
In 1993, Froeb, Koyak, and Werden reviewed bidding data from an existing bid rigging conspiracy in the sale of frozen seafood to the Defense Personnel and Support Center (DPSC) in Philadelphia.² Their model estimated the price effects of bid rigging and price fixing conspiracies based on observed price differences between collusive and competitive periods. Their observations compared data from three distinct time periods: (i) a “pre-conspiracy” period characterized by relatively constant prices despite big seasonal swings in fresh fish prices; (ii) a “transition” period characterized by a rapid decline in the price of frozen perch and rising costs; and (iii) a “post-conspiracy” period. To estimate the “but-for” conspiracy prices, the authors used weekly time series data in the post-conspiracy period and fit a regression model of frozen perch log price as a function of current and lagged costs, as measured by fresh perch log prices. The model is used to back-cast the “but-for” conspiracy price in two earlier periods that preceded the collapse of the bid rigging scheme. They found that the price during the conspiracy period was significantly above the “but-for” predicted price in every auction, with an average cartel mark-up in the range of 23.1% to 30.4%, depending on the period chosen to define the bid rigging conduct.

Using the data from the same bid rigging conspiracy in the sale of frozen seafood to the DPSC, Abrantes-Metz, Froeb, Geweke and Taylor examined the price movements over time around the collapse of the bid rigging conspiracy and concluded that while the mean decreased by 16%, the standard deviation increased by over 200%.³ To estimate the effect of the conspiracy, they focussed on the period around the cartel’s collapse and further restricted the analysis to frozen perch fillets (one of the different products rigged by the cartel). They plotted the average weekly price paid by the Philadelphia DPSC for frozen perch fillets, as given by the winning bids; cost data were the average monthly price of fresh perch. The result is illustrated in Fig. 1.a below which illustrates what happened to prices when the conspiracy collapsed following reports of an investigation by the U.S. DOJ. Relative to costs, prices of frozen perch dropped dramatically in August, 1988. In the post-conspiracy period, prices began to co-vary more closely with costs, and exhibited a larger variation (over time). They then compared prices and costs in the “collusive” period (to the left of the vertical lines) to prices in the “competitive” period (to the right of the vertical lines), and assumed that the period in between the two lines represents a transition from collusion to competition.

¹ See Section 3.2.3 of this paper.

² Froeb, Koyak, and Werden (1993).

³ Abrantes-Metz, Froeb, Geweke and Taylor (2006).

Fig. 1.a - Frozen perch prices and costs: Jan. 6, 1987 – Sept. 26, 1989

Source: Abrantes-Metz, Froeb, Geweke and Taylor (2006).

They then calculated the mean price and the standard deviation of price, and found that when standardized by the mean, the standard deviation of the price, or its coefficient of variation, increased by 332% from collusion to competition (see Table 1.a below). The mean and standard deviation of the cost were also higher under competition, but not enough to account for the increase in price variance. They concluded that the bid rigging conspiracy not only increased the price level but reduced its variance as well.⁴

Table 1.a - Means and standard deviations for perch price and cost (\$/pound)

Statistics	Collusion	Competition	Differences across regimes (%)
Price			
Mean	3.544	2.97	-16.2
Standard deviation	0.078	0.283	263
CV=standard deviation/mean	0.022	0.095	332
Cost			
Mean	0.722	0.771	6.8
Standard deviation	0.114	0.173	51.8
CV=standard deviation/mean	0.158	0.224	41.8

Source: Abrantes-Metz, Froeb, Geweke and Taylor (2006).

⁴

Based on this finding, the authors applied the “variance screen” to the retail gasoline stations in Louisville, Kentucky, in 1996–2002. If a cartel existed in that market, the variance screen would identify clusters of gasoline stations located close to one another and exhibiting lower price variation and higher prices relative to other stations in the city. However, they found no such clusters and concluded that competitive conduct was a more plausible explanation than collusion.

In contrast, the review of two well-documented cartels, the lysine cartel and the citric acid cartel, by Bolotova, Connor, and Miller⁵ indicated that the variance of prices during the lysine conspiracy was lower and the variance of prices during the citric acid conspiracy was higher than during more competitive periods. The authors used extended ARCH⁶ and GARCH⁷ models to examine the differences in the behaviour of the first two moments of the price distribution during collusive and competitive phases. They hypothesised that the mean price is higher and the variance of the price is lower during collusive periods relative to non-collusive periods. According to their results, mean prices were higher in both cartels during the collusive period.⁸ They concluded that the variance screen may be a useful tool to detect conspiracies that do not significantly raise price but tend to homogenize business practices, which may raise profits and also reduce variance.

Abrantes-Metz, Kraten, Metz and Seow applied several different screening methods to determine if the U.S. dollar 1-month LIBOR rate had been manipulated by banks.⁹ The analysis is based on the comparison of LIBOR with other short-term borrowing rates, and analysis of individual bank quotes, and the comparison of individual quotes to the credit default swap (CDS) spreads during three different time periods. First, they examined the relationship between LIBOR and other major benchmarks, which they assumed were not manipulated, and concluded that the evidence on the average level of the LIBOR rate was consistent with the absence of a material manipulation. Then they examined the pattern of individual LIBOR quotes and how likely it is that a large number of banks will submit identical LIBOR quotes absent coordination.¹⁰ The results of this analysis indicated the possibility of manipulation. Finally, they analysed the relationships between individual LIBOR quotes and proxies for individual borrowing costs as determined by CDS spreads to test if banks with relatively low CDS spreads were also banks with relatively low LIBOR quotes. They found that several banks' LIBOR quotes were unrelated to their ordinal positions in CDS spreads, and therefore raised again the possibility that the LIBOR index had been manipulated.

The use of variance screens has become rather widespread in empirical work and a number of screens based on price variance have been designed and applied to specific markets. Just to mention some examples, Eruthku and Hildebrand used a differences-in-differences approach to determine whether a public announcement of an antitrust investigation (which triggered the collapse of a cartel) may be used to detect a price-fixing conspiracy in the retail gasoline markets in Quebec.¹¹ Jiménez and Perdiguero applied

⁵ Bolotova, Connor, and Miller (2008).

⁶ This is the traditional autoregressive conditional heteroscedasticity model (ARCH).

⁷ This is the generalized ARCH (GARCH) models.

⁸ The authors explain this as a consequence of the especially long period of the citric acid cartel: it would be more difficult to enforce cartel discipline during longer period. Another explanation for the result could be the shortage of data for non-collusive periods compared with the greater availability of observations for the cartel period (see Esposito and Ferrero, 2006).

⁹ Abrantes-Metz, Kraten, Metz and Seow (2012). A more detailed account of the application of screens to detect possible manipulations of the LIBOR index is included in Annex 2 of this paper.

¹⁰ To that end, they first examined the intra-day variance of these individual quotes. They also calculated the frequency with which each bank appeared in the “deciding group”, and identified banks that tended to be in the deciding group most often. They hypothesized that “manipulative” banks should cluster together in non-random patterns. To test this, the authors computed pairwise correlations between all possible bank-pairs and calculated the frequency with which each bank appeared in the deciding group, and identified a group of banks that tended to be in the deciding group very often.

¹¹ Eruthku and Hildebrand (2010).

a price variance (over time) screen to the retail gasoline market in the Canary Islands, Spain.¹² In another example, Abrantes-Metz and Pereira analysed the mobile phone sector in Portugal before and after the entry of a new operator.¹³

2. Examples of cartel screens based on the analysis of anomalous bidding

Several screens have been developed to detect bid rigging conspiracies in public procurement tenders. There are several reasons which favour the development of these type of screens. First, public procurement markets are very rich with data; tenders are generally public and the bids are disclosed at the end of the process allowing for building comprehending datasets which can be then used to empirically test the screens. This allows the comparison of bidding patterns across tenders, across time and across different procurement entities purchasing the same goods or services. The particular rules of the tender also allow to make assumptions on how bidders should behave in a competitive environment.¹⁴ For example, in sealed bid tenders, one should assume that bid reflects the bidder's costs and the market conditions. If bids by independent bidders are highly correlated (even once discounted the different costs and market conditions) that can be used as an indication of possible collusion.¹⁵ Building on these assumptions or patterns for competitive bidding, the economic literature has developed a number of screens to detect anomalies in bidding strategies which in turn could indicate that bidders' behaviour is at odd with a competitive process.

In 1993, Porter and Zona examined bidding behaviour in auctions for the construction of a State highway, with the aim of determining if bid rigging occurred.¹⁶ They developed a test based on the existence of "phantom bidding" (or phony or complementary bidding) in procurement auctions, based on the differences in bidding between cartel members and non-members. Using procurement data from the New York State Department of Transportation (DOT), they applied their test to the Nassau and Suffolk county DOT contracts from 1979-1985, and found that the behaviour of the firms involved in the conspiracy was statistically different from that of the firms which did not belong to the cartel. In particular, they found that collusion did not take the form of a bid rotation scheme. Instead, several ring members bid on most contracts. However, a number of bidders submitted phony, higher bids. While the bids of non-cartel firms, as well as their rank distribution, reflected cost measures, they found that, in contrast, the rank distribution of phony bids was unrelated to similar cost measures and differed from that of the low cartel bid.

In 1999, Porter and Zona developed a test to detect bid rigging in school milk procurement auctions based on the economic prediction that in competitive markets bids should closely reflect costs. They examined (i) the institutional features of the school milk procurement process, (ii) the bidding data of 13 sealed bids submitted to supply pint-size milk to Ohio schools between 1980 and 1990, (iii) the statements of dairy executives, and (iv) the supply characteristics in Ohio during the 1980s. They compared the bidding behaviour of three defendant firms to that of non-defendant firms (the control group)¹⁷ and using a

¹² Jiménez and Perdiguero (2011).

¹³ Abrantes-Metz and Pereira (2007).

¹⁴ See also discussion on collusive markers for bid rigging conspiracies, in Section 3.3.1 of this paper.

¹⁵ For example, if the correlation across bids is significantly higher across bidders in one market than across bidders in another comparable market, this is an indication that there might be some form of coordination between bidders in the first market. This would be the case particularly if differences in correlation between the two markets could not be accounted for by observable and legitimate differences in market conditions.

¹⁶ Porter and Zona (1993).

¹⁷ In 1994, the state of Ohio charged thirteen dairies with bid rigging in school milk procurement auctions from 1980 to 1990.

simple econometric model, they found that each defendant firm's bidding function was statistically different from the bidding functions of non-defendant firms. They argued that the behaviour of these firms was consistent with collusion. The estimated average effect of collusion on market prices was about 6.5%.

Bajari and Ye (2003) examined bids for seal coating by highway contractors in the Upper Midwest of the United States during the 1990s.¹⁸ Their screen was based on the assumption that distance and backlog are important pricing determinants in this market. Using a regression model with a firm's bid as the dependent variable and an engineering cost estimate, distance from the project and backlog as explanatory variables, they found that bids increased with both these measures, as would be expected under competition. The evidence was consistent with two firms (out of 11) colluding. Both firms, incidentally, were later successfully prosecuted for bid rigging.

3. Example of cartel screens based on variables other than price

Price is not the only competitive variable that can be used to detect collusion.¹⁹ There are other variables that manifest themselves differently if collusion is present, including industry processes such as market clearing, technological innovation, rate of return, and product innovation among others.²⁰ The outcomes of these processes are different under competitive and collusive behaviour, and, thus, can be used as a way to detect cartels.

In 2008, Lorenz suggested a screen based on a number of tests designed to detect failures in these market processes (Coordination Failure Diagnostic or CFD), which could be the result of collusion.²¹ According to Lorenz, in economic theory there are five coordination tasks that market processes are supposed to fulfil in order to attain dynamic efficiency and to maximise society's welfare: (i) under competition, in the short run, supply should meet demand and markets should clear; (ii) in the long run, capacities and rates of returns on capital should be normalised; (iii) competition should erode market power; (iv) there should be efforts to improve the quality or diversity of products; and (v) production methods should be improved in order to reduce costs.

The following Table 1.b summarises the collusive markers employed by Lorenz's proposed screen.

¹⁸ Bajari and Ye (2003).
¹⁹ See Section 3.2.3.3 in this paper.
²⁰ Lorenz (2008).
²¹ Lorenz (2008).

Table 1.b - Collusive markers in the CFD cartel-audit

Process	Indicator	Characteristics
Market clearing	Nominal price	Seldom and high volatile changes of price-index
	Capacity utilization	Small capacity utilization Permanent excess supply
	Correlation price/ quantity	Fixed prices in cyclical downturns
Rate-of-return normalisation	Rate-of-return	Excess rate-of-return, perhaps reduced by excess capacities or by fixed prices in recessions (under fixed costs)
	Capacities	Excess capacities, reduction only by acquisition
	Correlation capacity growths/ROR	Dysfunctional growth of capacities Excess capacities independent of rate-of-return
Erosion of market Power	HHI, equivalence index number	Concentration ratios show market power and oligopoly
	Volatility of market shares	Low volatility of market shares, especially by fixed quotas
Product innovation	Market share of new products	Obvious innovation lags
Technology innovation	Labour productivity	Innovation success hindered by X-Inefficiency
		Little incentives for productivity gains without competition

Source: Lorenz (2008), Table 2.

Lorenz applied his methodology to the German cement market, which had been affected by collusion for decades, and found that collusion could have been detected perhaps even in the early eighties.²² He concluded by advocating the implementation of the CFD cartel audit by competition agencies. First, he argued for the robustness of the CFD methods by applying the screen to additional markets, both markets affected by collusion (Table 1.c) and markets where it is believed competition prevailed (Table 1.d).

²²

Lorenz (2008).

Table 1.c - Collusive markers in cartelised markets

Indicator/Industry	Cement	Cable	Paper	Lysine	Shipping	Concrete
Nominal price	+	–	0	+	–	–
Excess supply	+	+	+	+	+	+
Correlation price/quantity	+	+	+	+	+	+
Excess rate-of-return	+	–	–	0	+	–
Excess capacities	+	+	+	+	+	+
Correlation capacity growths/ROR	+	+	+	0	+	0
HHI	+	+	+	+	+	–
Market share volatility	+	0	0	+	0	0
Product innovation	+	+	+	0	0	0
Technology innovation	–	+	0	0	0	+

(A “+” symbols are indicator, which would have given an advice for cartelised structures, a “–” stands for an indicator, that failed to detect a cartel. Markets where the necessary data were too costly or not available for private individuals are marked with 0)

Source: Lorenz (2008), Table 3.

Table 1.d- Collusive markers in competitive markets

Indicator/Industry	Electrical engineering	Steel	Textile	Automobile	Machine building
Nominal price	–	–	–	–	–
Excess supply	–	–	+ ^a	–	–
Correlation price/quantity	–	–	–	–	–
Excess rate-of-return	–	–	–	–	–
Excess capacities	–	–	+	–	–
Correlation capacity growths/ROR	–	–	–	–	–
HHI	–	–	–	+ ^b	–
Market share volatility	0	– ^c	0	+ ^d	0
Product innovation	–	–	–	–	–
Technology innovation	–	–	–	+ ^e	–

^a The permanent excess supply is caused by growing imports especially through the liberalised regulation of GATT (General Agreement on Tariffs and Trade) for the textile industry. The same argument explains the excess capacities

^b Caused by the oligopolistic market structure in the German automobile industry

^c Market share volatilities above the threshold were found only for the cartelised period

^d The market share volatility measured with car brands results in a variance of 0.0865 %, which is not indicative for cartelised structures. But looking at the variance of brands assigned to concerns leads to 0.0388 %, which is as small as in some cartelised industries

^e This shortfall of labour productivity is caused by Japan advance as world-cost leader

Source: Lorenz (2008), Table 4.

It appears that the screen was rather successful at detecting collusion and that at the same time the number of false positives was rather low. In addition, Lorenz noted a number of advantages of his methodology: (i) it uses easily available data that can be obtained from research institutions or statistical offices; (ii) it may be implemented using available software; and finally, (iii) is costly to beat, as it requires cartel members “*to change their real behaviour and to forego profits to fool the authority which results in unsuspecting market shares, prices, capacities, innovations and so on. These attempts are costly and can lead to higher instability of collusion by changing the market structure.*”²³

In 2009, von Blanckenburg and Geist, analysed the “*workability of markets*” based on several market variables in order to assess if market processes are consistent with competition or not.²⁴ They identified six variables: (i) utilization rate of production capacities, (ii) correlation between the utilization rate of production capacities and price changes, (iii) difference between the rate of return in the industry to a broader comparison rate of return, (iv) correlation between the rate of return difference and capacity growth rate changes, (v) variance of price changes, and (vi) variance of capacity growth rate changes.²⁵ They then used these six market variables to analyse real market processes by means of time series analysis and to investigate whether they operated efficiently or not. The authors submitted that this concept can be used as a tool for detecting cartels and tested it on five German industries from 1980-2007. They found that the German cement industry (which is known to have had a cartel that lasted from 1981 to 2002) showed significant differences from the other four industries which were used as competitive benchmark.

In 2010, the same authors applied their method to find if collusion had occurred on markets with observable market data.²⁶ They used the same variables and expected behaviour patterns such as low level of capacity utilization, slackness of price adjustments to exogenous shocks, excess rates of return, nearly constant capacities, less price changes and lower variance of capacity growth rate. However, they added a new variable as a further marker in order to detect cartels, i.e. cost efficiency. They assumed that if cartel members face lower competition they tend to be less cost efficient.

4. Examples of screens to detect manipulations and frauds other than cartels

Screens have been developed also to detect forms of illegal conduct other than cartels. In particular, screen for detection of frauds and manipulations are regularly used by regulators such as central banks, securities commissions, treasury departments and other oversight authorities.²⁷ While the purpose of this paper is not to provide an extensive account of these screens, some examples can exemplify the differences and commonalities that exist with cartel screens.

Manipulations and frauds can be very different from a cartel conspiracy and screens designed to detect these illegal behaviours need to reflect these differences. For this reason they tend to be more individualised and case-tailored than screens designed to detect collusion.²⁸ A market manipulation, in general: (a) involves fewer members, sometimes just a single firm, than a cartel and (b) it does not necessarily focus on maintaining a fixed price level *per se*, but might involve increasing price movements

²³ Lorenz (2008).

²⁴ von Blanckenburg and Geist (2009).

²⁵ For a discussion of how these variable can be used as markers for collusion, see above Section 3.2.3.3.

²⁶ von Blanckenburg and Geist (2011).

²⁷ For an overview of some examples of manipulations and frauds detected through the use of screens, see Annex 2, Section 3.

²⁸ Abrantes-Metz, Kraten, Metz and Seow (2011).

over a period of time.²⁹ The principles, however, on which these screens are built are similar to those described for the design of cartel screens.³⁰ Screens aim at detecting unusual behaviour or behaviour which is inconsistent with the correct functioning of certain processes. For example, screens to detect financial frauds or manipulations involve detecting price distortions which cannot be explained by seasonality and common demand and supply conditions.³¹

Recently, Abrantes-Metz and Addanki developed a screening methodology to detect possible manipulations in commodities markets.³² Their methodology proposes a variance (over time) screen to detect manipulation of commodity prices based on an analysis of the Hunt Brothers' silver manipulation episode of 1979-80. They assumed that manipulations induce noise in the market and distort market expectations about future prices because they provide an informational advantage to manipulators over the rest of the market. By fooling the market, manipulators distort the market's expectations of future prices, which in turn is reflected in the risk premium. By defining the price of a futures contract as the market's expectation of the future spot rate, they found that manipulations induce more volatile market forecasting errors regarding future prices. They also found that that longer maturity contracts show the effects of manipulation more clearly than the shorter duration contracts.

Pirrong analysed the manipulation of U.S. commodities law through the lens of the alleged distortion of the soybean futures market in 1989 by Ferruzzi.³³ He tested two hypotheses: (a) that the price of the manipulated contract was significantly larger than the price of the contracts expiring at a later date, a distortion that is often largest immediately before the manipulator liquidates his position, and (b) that the expiring futures price and the spot price at the delivery market were significantly larger than the prices at other, non-deliverable locations. His method relied extensively on historical data. The results of this study were consistent with the hypothesis that Ferruzzi exercised monopoly power, thereby creating an estimated price distortion of 5–10%.

Christie and Schultz, studied data on stock trades through the NASDAQ system and noticed some unusual behaviour, which could only be explained by manipulation -either explicit or tacit- on the part of stock dealers. On the NASDAQ market, bid or ask quotes must be multiples of an eighth of a dollar if the bid price exceeds \$10. As a result, bid or ask quotes end in either even-eighths (0, 2/8, 4/8, 6/8) or odd-eighths (1/8, 3/8, 5/8, 7/8). Thus, the narrowest inside spread is one-eighth. Christie and Schultz expected that if the market was not manipulated all fractions would be seen with roughly equal frequencies, as was the case on other stock exchanges. However, they found virtually no inside spreads on Apple Computer stock as small as one-eighth. Indeed, virtually all bids were in even eighths (which ensured that no one-eighth spreads could occur). When they looked at the 100 most actively traded stocks, they found that odd-eighth quotes were extremely rare for 70 of them, including for highly visible and actively traded stocks as Intel, Amgen, Microsoft, and Cisco Systems. Thus, Christie and Shultz concluded that the market makers had an understanding not to use odd-eighth quotes on these 70 stocks, a practice that ensured that their inside spread would not fall below two-eighths, 25¢, per trade. They tested three hypotheses which could explain such behaviours: (i) coarse pricing increments to lower negotiation costs, (ii) cost determinants of the spread, and (iii) tacit collusion among dealers. By elimination, the authors concluded that the only

²⁹ This is for example the case of manipulations of the commodities markets where large price increases often precede sudden price collapses.

³⁰ See Section 3.2 in this paper.

³¹ For example, a standard "red flag" for manipulations in futures markets is backwardation, i.e., a condition where the price of a futures contract is lower than its spot or cash price, an inversion of the more typical contango relationship (Abrantes-Metz, Kraten, Metz and Seow, 2011).

³² Abrantes-Metz and Addanki (2007).

³³ Pirrong (2004).

remaining hypothesis explaining the absence of odd-eighth spreads for NASDAQ securities was tacit collusion among market makers.

Other screens which aim at detecting manipulations and frauds are based on mathematical laws, such as the Benford's Law. This is a mathematical formula that describes the regularly occurring distribution of digits.³⁴ Because the law applies to a large number of data sets, it is commonly used in to detect a variety of frauds and manipulations, ranging from data tampering in taxes, in accounting, in financial ratios, and in survey data.³⁵ Recently, Abrantes-Metz et al. used the Benford second digit reference distribution to track the daily LIBOR over the period 2005 to 2008.³⁶ They found that in two periods, LIBOR rates departed significantly from the expected Benford reference distribution, which led them to raise potential concerns relative to the unbiased nature of the signals coming from the 16 banks from which the LIBOR is computed. They concluded that the LIBOR rate had likely been manipulated, questioning its usefulness as a major economic indicator.

³⁴ The Benford's Law refers to the frequency distribution of digits in many (but not all) real-life sources of data. In this distribution, the number 1 occurs as the leading digit about 30% of the time, while larger numbers occur in that position less frequently: 9 as the first digit less than 5% of the time. This distribution of first digits is the same as the widths of grid-lines on a logarithmic scale. Benford's Law also concerns the expected distribution for digits beyond the first, which approach a uniform distribution. See Benford, (1938) and Varian (1972).

³⁵ See for example, the applications made in Judge and Schechter (2009), Nigrini (2005), and Ashton and Hudson (2008).

³⁶ Abrantes-Metz, Villas-Boas and Judge (2011).

ANNEX 2. SCREENS APPLIED BY COMPETITION AGENCIES AND OTHER REGULATORS

1. Examples of *structural* screens used by competition agencies

Some agencies have used structural approaches to screen sectors and identify industries which present characteristics that make them more prone to collusion. Although they provide helpful insights, structural methods are often affected by severe shortcomings, as discussed in the main part of this paper.¹ Friederiszick and Maier-Rigaud identify four main limitations:²

- First, the level of aggregation used in structural screen is generally too high to identify specific antitrust markets and, in addition, industry classifications do not match antitrust markets.
- Second, an empirical analysis across various sectors requires well-defined, “automated” screens; this exposes the screening programme to evasion by cartelists.
- Third, the relationship between economic factors and the probability of collusion is often not linear, and various economic factors may have different effects on competition depending on the market features.³
- Fourth, by relying on past cartel detection to predict cartel activity in other industries in the future, a selection bias is introduced if the cartels detected are not a representative sample of cartels in general.

The following sections describe structural screening programmes put in place by competition agencies.

1.1 *The Dutch structural screening programme – The Competition Index*

In 2006, the Dutch competition agency (NMa) started using structural screening techniques to boost its cartel enforcement programme.⁴ At the time, the NMa had just had a positive experience with the detection of a shrimp cartel, suggesting promising prospects for these tools. The methodology relied on a two steps analysis: the first step classified industries according to their NACE codes based on the risk of collusion.⁵ This first step allowed the NMa to identify on a yearly basis the 20 top-ranked sectors which would deserve further scrutiny. The second step was industry-focused and relied on behavioural screens

¹ See Section 3.4.

² Friederiszick and Maier-Rigaud (2008).

³ For example, a high level of price parallelism in a highly concentrated industry may be considered as an indicator for a higher probability of collusion while price parallelism in a highly fragmented market matches the theoretical prediction of the behaviour of competitive firms.

⁴ Buijs and Vermeulen (2008).

⁵ The risk was determined on the basis of a series of structural indicators grouped in four categories: 1) concentration (measured as number of firms in an industry, the HHI, and the share of imports on the net turnover); 2) market dynamics (measured as average market growth, churn, survival ratio, and the share of R&D on gross value added); 3) price index in the Netherlands (in proportion to the weighted EU-15 mean); and 4) organization of the industry (measured by the number of trade associations in the analysed industry). The indicators are then standardized, and then followed by the calculation of a risk of collusion through a predefined weighting scheme.

based on price, quantity, and market shares. This methodology was, however, subject to a number of criticisms when it came to its implementation. In the first phase, the NACE classification limited the usefulness of the screen when it came to identify potentially collusive markets in the antitrust sense. The outcomes also relied heavily on the chosen normalization and weighting scheme of the indicators, which exposed the ranking to many criticisms. As for the second phase of the methodology, often the behavioural testing could not be performed because of the lack of adequate data, leaving the possibility of many cartels going undetected.

Despite these initial pitfalls, mainly due to the high likelihood of false positives, in 2011 the NMa developed a revised version of the methodology. The revised methodology used structural methods in the framework of its “Competition Index” (CI).⁶ The CI relied on the same indicators as the former NMa approach: the number of trade associations, the product prices in the Netherlands versus European Union-averages, the Herfindahl-Hirschman Index (HHI), the number of firms, the import rate, market growth, churn rate, survival rate and R&D as a percentage of sales. These indicators were considered indicative of the likelihood of anti-competitive behaviour. The CI evaluates industries⁷ on the basis of public data and through a weighting scheme and it assigns to every surveyed industry a score indicative of its likelihood of being affected by collusion. Industries that score high on the CI may be considered worthy of further scrutiny by the NMa. The CI index ranks industries according to those which are most prone to anti-competitive behaviour. By looking at the top-30 industries in the CI ranking, manufacturing industries represent a significant part. This is largely due to the high number of trade associations in these industries. Another interesting observation is that the results under ‘number of firms’ often approach one (indicating possible oligopoly). Import rates, on the other hand, are generally not generating results that might indicate anti-competitive behaviour. In addition, it appears that transport industries and the renting of transportation equipment are concentrated; the standardized HHI score is one in these industries.

The CI methodology tries to address several problems identified in the earlier screening programme of the NMa, such as market definition and weighting issues. For example, in order to document the insensitivity of the CI to the weighting scheme, several different weightings were applied. Moreover, the results of the CI were tested against detected cartels in other countries (“practical test”), which revealed a high degree of overlap. Finally, a statistical comparison of the CI with other measures of competition, such as the price-cost margin or the Boone indicator (“theoretical test”) was conducted, resulting in signs of a weak but significant correlation. One of the key advantages of the CI methodology is that the entire economy is subject to scrutiny. In addition, it is easy to apply and it requires little capital and labour input.

1.2 The UK OFT attempts to set up a structural screening programme

The United Kingdom looked into the possibility to use structural economic analysis in competition law enforcement. In a study commissioned by the OFT in 2005, Grout and Sonderegger developed a detailed methodology which aimed at predicting the existence of a cartel by using a standard industrial classification.⁸ This methodology identified industry-level variables (such as industry turnover, cost measures, concentration measures, entry barriers, and employee costs, among others) that allows to predict

⁶ Petit (2012).

⁷ We use the term industries because the CI screens data on 500 “industries” of the Dutch economy, which do not necessarily correspond to “relevant markets” defined for antitrust purposes. Grout and Sonderegger adopt a similar approach in their study (Grout and Sonderegger, 2005). While adopting this classification and using industry level available data simplifies the data collection process, it has been heavily criticised for not being very informative, as industries do not correspond to relevant markets for antitrust purposes. See e.g. Laitenberger and Hüschelrath (2011).

⁸ Grout and Sonderegger (2005).

cartel activity and used a data set of U.S. DOJ's price-fixing cases since 1994, and European Commission's price-fixing cases since 1990.

Grout and Sonderegger relied on several econometric models to estimate how structural factors can influence the presence and frequency of detected cartels in a given market. They then used the respective estimation results to predict the likelihood of a cartel presence in all industries and concluded that telecommunications, manufacture of aircraft and spacecraft, manufacture of grain mill products, starches, and starch products were industries especially prone to collusion. The regression analysis allowed the authors to derive a probability of collusion for industries that have not been suspected of collusion in the past, thereby providing a tool for competition agencies to generally redirect their enforcement priorities.

Similarly to the Dutch experience, the methodology developed by Grout and Sonderegger for the OFT has been subject to similar criticisms because of the lack of alignment of industry classifications with actual antitrust markets,⁹ and the difficulty to distinguish between explicit and tacit collusion. The OFT today recognises that structural factors can contribute to predict the incidence of cartels with an industry but that they are not a perfect science. Therefore, the OFT cartel detection strategy relies on a multi-faceted approach which includes consumers/competitors complaints and, under some circumstances, internal economic analysis.

1.3 Structural screens in the experiences of the U.S. Federal Trade Commission

In 1998, to detect competition problems, the U.S. FTC initiated a broader screening project focusing especially on price movements. The screening methodology was based on the hypothesis that the exercise of market power (and indeed of a cartel) would cause prices to increase throughout a business cycle. The U.S. FTC economics department started identifying industries that experienced price increases during periods where output was stable and the industry was still in recession. Using various data sources such as production price indices of the Bureau of Labor Statistics, the U.S. FTC detected approximately 600 suspicious industries, 25 of which were selected for further investigation. Of these 25, no benign reason for the price increases could be found for 3 industries. One industry was already under extensive investigation by the U.S. DOJ. There is no public record about the outcome of the other investigations.¹⁰

These experiences show that a "blind" approach has a high likelihood of generating false positives, and this may have led the U.S. FTC to abandon the systematic use of cross-industry screening tools. The U.S. FTC, however, continues to screen on a systematic basis prices in one particular market, i.e. the market for gasoline and diesel products as part of its monitoring functions of the oil and natural gas industry.¹¹ Since 2002, the U.S. FTC has been monitoring wholesale and retail prices of gasoline in an effort to identify possible anti-competitive activities and determine whether a law enforcement investigation would be warranted. Today, this project tracks retail gasoline and diesel prices in some 360 U.S. cities and wholesale (terminal rack) prices in 20 major urban areas. The U.S. FTC's Bureau of Economics receives daily data from the Oil Price Information Service (OPIS), a private data collection company, and reviews other relevant information that might be reported to the U.S. FTC directly by the public or by other Federal or State government entities.

⁹ For example the Grout and Sonderegger study identifies "telecommunications" as an industry prone to collusion but does not distinguish within the telecommunication industry, between fixed and mobile telephony (just to make an example) which have different histories and a different affinity for cartelization.

¹⁰ Reported in Abrantes-Metz and Bajari (2012).

¹¹ See http://www.ftc.gov/ftc/oilgas/gas_price. See also US submission to the Roundtable on "Competition in Road Fuel", June 2013 [DAF/COMP/WD(2013) 45].

An econometric model is used to determine whether current retail and wholesale prices each week are “anomalous” in comparison with historical data, after controlling for known shocks and seasonal effects. The model compares contemporaneous price differences between cities, not the dynamic price adjustment process itself. If retail prices in two areas adjust to the same costs shocks at different rates, prices in these two areas will be observed as diverging for some period of time. For most cost shocks, small differences in adjustment speeds across cities would not normally lead to the identification of price anomalies. However, if a cost shock were relatively large, different pass-through speeds between areas could lead to very noticeable changes in contemporaneous price differences. So far, all price anomalies observed by the U.S. FTC could be explained by non-collusive events (such as pipeline breakages or the malfunctioning of refineries).

Box 2.a - U.S. FTC gasoline prices monitoring programme
(Excerpts from the U.S. submission to the OECD Roundtable on “Competition in Road Fuel”) ¹²

[...]

18. Collusion does occur in petroleum markets. Since 1970, the DOJ has brought 23 criminal cases involving price-fixing conspiracies in local gasoline and diesel fuel markets, in over a dozen states. These cases resulted in convictions of 22 individuals and 55 companies. The Division filed its most recent gasoline price-fixing case in 2008.¹³

19. Much concern about gasoline and diesel pricing focuses on developing a data screen to identify pricing “anomalies” as potential indicators of tacit or overt collusion. In a programme unique to petroleum markets, the FTC actively monitors wholesale and retail prices of gasoline and diesel fuel in an effort to keep up with pricing trends in the markets. This project tracks retail gasoline and diesel prices in some 360 cities across the U.S. and wholesale prices in 20 major U.S. urban areas. The FTC’s Bureau of Economics staff regularly receives and reviews data from a private oil price data collection company, as well as information from the U.S. Department of Energy and other relevant information. FTC staff uses an econometric model to determine whether current retail and wholesale prices each week are anomalous compared to historical data.

20. The Monitoring Project alerts FTC staff to unusual changes in gasoline and diesel prices so that further inquiry can be undertaken expeditiously. It is important to understand that these price changes do not indicate the existence of anti-competitive conduct. Instead, they suggest only that something has changed. Most frequently, they occur because of changes in market forces, such as a temporary supply disruption caused by unplanned refinery outages. When unusual price changes do not appear to result from market-driven causes, staff consults with the Energy Information Administration of the Department of Energy. FTC staff also contacts the offices of the appropriate state Attorneys General to discuss the anomaly and appropriate potential actions, including opening an investigation.

21. The Agencies belong to a multi-agency Oil and Gas Price Fraud Working Group that the Attorney General established pursuant to President Obama’s request in the spring of 2011. Members of the Working Group meet in person or communicate through other means to share information about their activities in the energy markets. These interagency communications are helpful to the member agencies as they individually formulate and pursue law enforcement and other programmes involving petroleum and other energy products.

[...]

¹² DAF/COMP/WD(2013) 45.

¹³ Press Release, U.S. Department of Justice, Convenience Store Company and Individual Charged with Retail Gasoline Price Fixing in Oklahoma (Sept. 19, 2008), available at www.justice.gov/atr/public/press_releases/2008/237430.htm; Press Release, U.S. Department of Justice, Tennessee Oil Company and its President Charged with Gasoline Price Fixing (July 21, 1993), available at www.justice.gov/atr/public/press_releases/1993/211645.htm.

2. Examples of *behavioural* screens used by competition agencies

If structural screens can be applied to a wide range of sectors and industries, behavioural approaches focus on economic outcomes in a particular market. In this respect, behavioural screens are more flexible and can rely on a more case-based approach. Obviously, also behavioural screens methods have their own limitations. The most important ones relates to the difficulty to access market data and to the resource requirements for implementing behavioural screen. These are also main reasons why screens have been rarely used by competition agencies to detect cartel cases. Today, they represent more the exception to the rule. The next Sections will provide an overview of some of these national experiences.¹⁴

2.1 Mexico

The Mexican competition agency (Comisión Federal de Competencia (CFC), today Comisión Federal de Competencia Económica) was able to successfully identify bidding patterns consistent with collusion in the procurement markets for several drugs through the use of screens. The CFC discovered that during the collusive period, prices quoted in winning bids or in losing bids were identical across auctions, while the identity of the winning bidder alternated. It also appeared that the number of contracts allocated for the purchase of some types of drugs was practically the same. In the Mexican case, screens proved to be useful not only to detect suspicious patterns but also to focus the CFC's investigation and make the CFC's case in court.¹⁵

The use by CFC of screening tools to detect possible collusion is described in detail by Estrada and Vazquez¹⁶ and by Mena-Labarthe.¹⁷ By applying price and market share screenings, the CFC identified instances where identical bids were submitted and where market shares of bidders converged over time. The CFC also found that the number of instance of identical bids dropped and the market share converging pattern disappeared after aggressive entry in the market or after a change in the procurement strategy of the procuring entity (e.g. procurement consolidation occurred). These events were used by CFC as structural breaks for its analysis.¹⁸ The findings triggered a formal CFC investigation in two of the largest families of drugs (insulin and saline solutions) and subsequently led to the adoption of an infringement decision by the agency.¹⁹

¹⁴ For a general discussion on the implementation of various screens by competition agencies see Laitenberger and Hüschelrath (2011).

¹⁵ Mena-Labarthe (2012). It must be noted that at the time of the investigation the CFC did not have the power to conduct unannounced inspections (dawn raids) of the companies involved in the alleged conspiracy. This limited significantly the possibility for the CFC to obtain direct evidence of the cartel and led the courts to be more opened to the use of indirect, economic evidence.

¹⁶ Estrada and Vazquez (2013).

¹⁷ Mena Labarthe (2012).

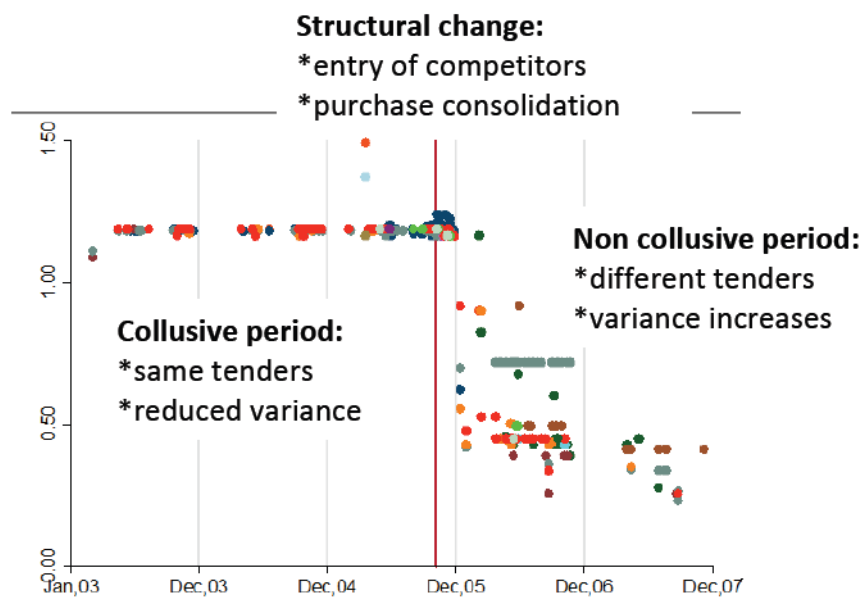
¹⁸ The CFC used as structural break the change in IMSS' procurement strategy. IMSS decided to consolidate procurement opportunities of each drug into a few large national contracts instead of many fragmented local contracts. This consolidation involved all drugs and increased incentives to compete and made market allocation agreements more difficult. Furthermore, even before this consolidation, some drugs registered aggressive entry with similar effects.

¹⁹ According to Mena-Labarthe the investigation followed an informal complaint made by the Mexican Social Security Institute (IMMS) and the CFC used screens to analyse a large amount of data provided by IMMS. In that case, screens "*proved to be an excellent tool to focus the resources of a certain investigation but also helped provide evidence in the case.*" (Mena-Labarthe, 2012)

According to CFC, the effective functioning of the bid rigging conspiracy was also facilitated by structural factors in the bidding process, which helped bidders allocate bidding opportunities and monitor compliance with the bid rigging scheme. Mena-Labarthe identified these facilitating factors in the fact that (i) the bidding guidelines issued by the contracting entity contributed to the standardisation of products, limiting scope for further competition; (ii) there were repeated bidding opportunities allowing for the monitoring of compliance with the collusive arrangement; (iii) communications between bidders were facilitated by regular meetings organised by the contracting entity to clarify procedural and/or technical issues related to the tenders; (iv) rules on “split awards”²⁰ allowed an easier allocation of the collusive earnings; (v) stable procurement strategies made the procurement process more predictable and more easy to “play”; and (vi) entry barriers made new entries costly and transparency rules (e.g. requirement to disclose the name and the bid of the winner) made monitoring easier.

For its case, the CFC relied mainly on two results from the screening exercise. First, the annual average of the winning and losing bids presented by the pharmaceutical cartel members were extremely similar between them and they only changed with the entry of a new winner or upon the consolidation of bids some years later (see Fig. 2.a and Fig. 2.b below).²¹ The average price was much higher during the collusive period, sometimes even 72% higher.

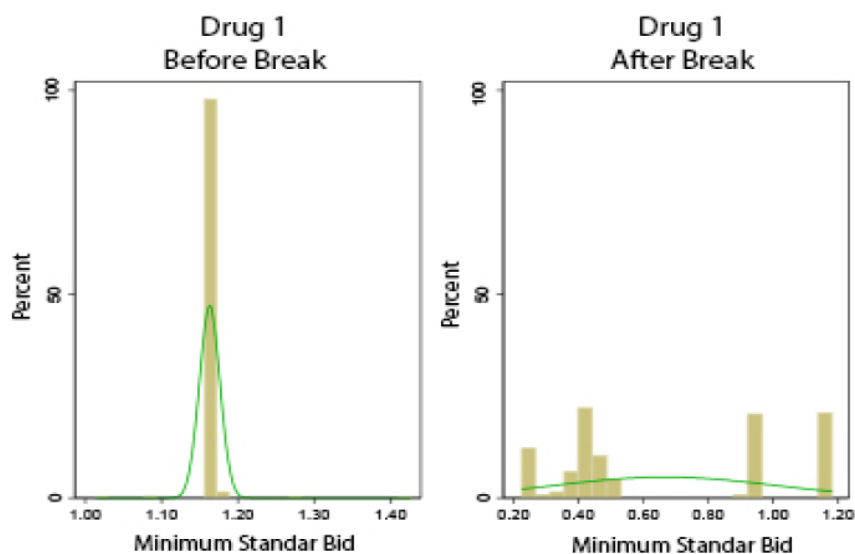
Fig. 2.a – Drug 1, average price/bid (Jan. 2003 – Dec. 2007)



Source: Mena-Labarthe (2012).

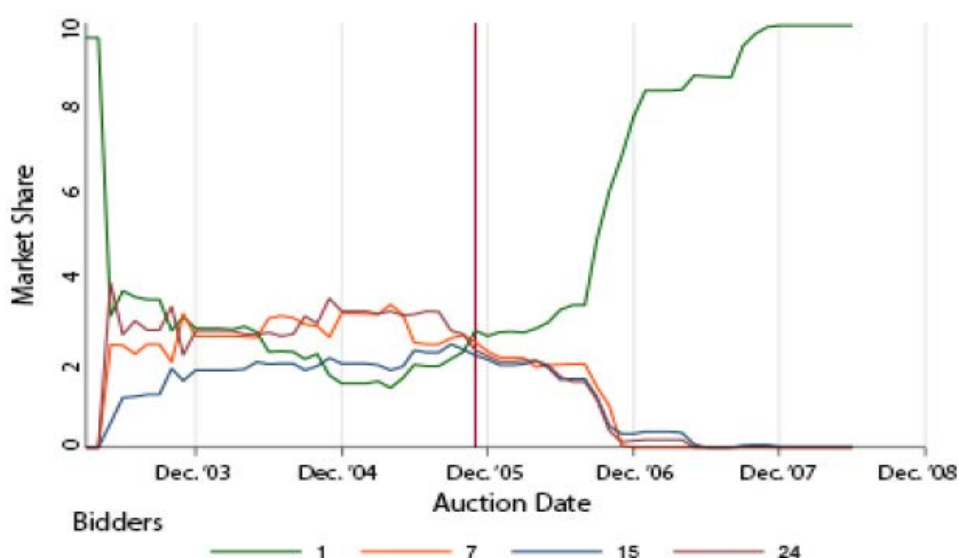
²⁰ The supplier with the lowest price is awarded the contract, provided such price is greater or equal to the reserve price (i.e. the price at which a person is willing to purchase or sell a given asset) determined by the contracting entity. Should the difference in price between lowest bidders round 5%, the bid value was proportionally allocated among them (so called “split award”).

²¹ The prices of winning and losing bids were always the *same*. The only variations were in the identity of the winner, which after winning, kept participating with loser bids, waiting for their turn to win again (bid rotation).

Fig. 2.b – Drug 1, Histogram and estimated density function

Source: Estrada and Vazquez (2013).

The second suspicious pattern identified by the CFC referred to the amount of the allocated contracts for each of the identified medicines (market share of each bidder on that procurement market). The screen showed that contracts were concentrated in the pharmaceutical companies involved in the cartel and, in some cases, the achieved portion for each of them was practically the same. During the life of the cartel, the market shares of the participants rapidly converged over time, until a structural break occurred and they started evolving in different directions (see Fig. 2.c below).

Fig. 2.c – Insulin, accumulated market shares²²

Source: Estrada and Vazquez (2013)

²²

The vertical line indicates the date of the potential structural break.

2.2 *Korea*²³

In 2006, Korea institutionalised a programme for bid rigging detection through the use of screens. The Bid Rigging Indicator Analysis System (BRIAS) automatically and statistically analyses bid rigging indicators based on the data on public tenders provided to the Korean Fair Trade Commission (KFTC) by public institutions. Using the data delivered on-line from the public institutions, the BRIAS system calculates the probability of bid rigging by giving weighted values to various indicators (e.g. bid-winning probability, the number of bidders, bid prices, competition methods etc.). The KFTC has used the BRIAS system since early 2006 to screen for bid rigging conspiracies in the public sector. The main objective of the system is to help the KFTC better uncover bid rigging conspiracy by enabling it to monitor automatically public tenders. BRIAS' success in detecting cartels is important not only in itself, but also because of its possible contribution to overall cartel deterrence: the system dissuades companies from entering into bid rigging schemes by signalling to the market that the KFTC is screening every public tender. On average, BRIAS flags more than 80 cases per month for further analysis by the KFTC staff.

Prior to the creation of the BRIAS system, the KFTC used to request public organizations the information on bidding opportunities above a certain size so that it could investigate possible collusive bidding. The information, however, was usually sent in written form which made it physically impossible for the KFTC to thoroughly review and analyse it. Since 2000, with many public institutions adopting electronic bidding systems, Korea developed a more efficient way to monitor public tenders. On-line bidding platforms made it possible for the KFTC to directly receive bid-related information (and documents) from procurement departments via the Internet for automatic screening of the possible bid rigging conspiracies. The KFTC applied the BRIAS screening system first to tenders of the Public Procurement Service, the largest public procurement office in Korea, in 2006. Later, in 2007, the system was extended to include tenders of four major state-owned companies (the Korea Electric Power Corporation, the Korea Land and Housing Corporation, the Korea Expressway Corporation and the Korea Water Resources Corporation). Today, a total of 332 public procurement agencies are participating to BRIAS, including central administrative agencies, local governments and government-own companies.

²³

This Section was prepared with the research and drafting assistance of Sunmi Lee on secondment to the OECD Competition Division from the Korea Fair Trade Commission.

Box 2.b - How does BRIAS work?

BRIAS operates in three phases, from the gathering of the data and input, to generating the results.

- In a first phase, BRIAS collects all bid- related data and information concerning large scale bidding contracts awarded by central and local administrations.²⁴ All data and information is collected automatically within 30 days of the tender award.
- In a second phase, the system analyses the data and information received and it automatically generates scores on the likelihood of bid rigging by assessing each relevant factor for the analysis (i.e. the successful bid rates, the number of bidders, competition method, the number of bid prices above the estimated price, how close are between the prices of the second and third bidders and the price of winning bidder). To each of these factors is assigned a weighted value. The scores of each evaluation items are the added up.
- In a last step, the bidding opportunities are screened by BRIAS according to search criteria, e.g. the name of a winner bidder, or bid opportunities which had similar score (90 or 85) of possibility bid rigging.

To design the system and to identify the criteria to detect possible bid rigging conspiracies, the KFTC relied on its past enforcement experience and used as benchmark pre-determined red flags for collusion. On the basis of these markers, the system was designed to give a higher score when (i) the successful winning rate of a company is high, (ii) there are few bidders in the tender process, (iii) there are several bidders whose bid is higher than the estimated price, (iv) non-competitive bidding processes are used, and (v) there is a large gap between the winning and the losing bids. The system, however, is effective only if the weighting system is correctly balanced. For example, in the SeongNam·Pangyeo apartment construction bid rigging case, the BRIAS was not in a position to flag the case for potential collusion because it was designed to give a higher score if the number of bidders in the tender process was less than 10. In this case, there were more than 10 bidders and the system did not flag the case for further investigation by the KFTC.

The BRIAS screening system has recently given encouraging results. KFTC investigators analysing the BRIAS database suspected that the bids submitted for the extension of Seoul's subway line 7 were rigged. In addition to the tenders scoring high on BRIAS, the investigators noticed that the six companies which were contracted for each of the six separate sections of the project, had won 27 out of the 33 tenders held by the Municipalities of Seoul and Incheon between 2003 and 2005 for railway/subway design and construction. They also found that the winning bids were higher than expected, that only 2-3 companies submitted bids for each one of the project's separate sections, and that except for the six winning companies, the companies participating in the auctions did not have the capability of independently completing the project and lacked the experience necessary to deliver such projects. Following-up on these suspicions, the KFTC searched the premises of the suspected firms, and seized incriminating documents.

2.3 Italy

Italy has not used screens to detect cartels to be subsequently investigated by the Italian Competition Authority (AGCM). In 2006, however, the AGCM tested the effectiveness of the price variance screen

²⁴

This includes bidding information for public construction projects of more than 5 million dollars and for good or service purchase of more than 500 thousand dollars. In addition, the data and information including 1) bid-letting institution, 2) type and method of bid, 3) date and content of bid announcement, 4) estimated cost, expected cost and bid to cost ratio, 5) number of participating bidders, 6) tender records of each participating bidder, 7) matters related to winning bidder, 8) winning bid price, 9) number of bid failures, and 10) number of expected cost increases, etc. should be sent from to BRIAS by the electronic procurement system.

initially proposed in Abrantes-Metz and others²⁵ on two markets which had been cartelised in the past, as documented in Esposito and Ferrero (two AGCM officials).²⁶ In a paper describing this exercise, the authors tested the power of the price variance screen to see whether the AGCM could have detected two well-known Italian cartel cases involving gasoline and diesel on the one hand, and baby food products sold in pharmacies on the other, had it applied *ex ante* a price variance screen. They also asked whether such a screen could have correctly identified who was involved in the cartel and during which time period. The answer to both questions was positive, as Esposito and Ferrero concluded that the price variance screen would have correctly identified the two cartels before the AGCM did through other means.²⁷

For the gasoline-retailing cartel, Esposito and Ferrero conducted an EU-wide comparison of price volatility across different markets in Europe for different time periods. They concluded that price volatility for gasoline and fuel products in Italy was the lowest among European markets. The cross-country comparison of the average price levels gave a similar result. Average prices (i.e. net of taxes) in Italy for both gasoline and diesel products were among the highest in Europe, which was consistent with a cartel conspiracy scenario. The Esposito and Ferrero's paper also applied the price variance screen to markets for personal care and baby food products where the AGCM had previously fined the professional association of pharmacies for restricting competition in sales through pharmacies.²⁸ The authors compared prices of products sold in pharmacies with prices of the same products sold in supermarkets and found that prices of products sold in supermarkets were systematically lower than those of the same products sold in pharmacies. They also found that prices of products sold in pharmacies fluctuated less.

The authors concluded praising the effectiveness of a price variance screen to detect possible instances of collusion. In particular, they submitted that this method: (i) is intuitive and easy to implement, as it makes use only of (aggregate) prices data, and not also of costs data, which is more difficult to collect; (ii) is grounded on computations of everyday use (variance of prices); (iii) has theoretical and empirical basis; (iv) it would be effective even if firms knew that competition agencies were adopting it to screen for cartels since, notwithstanding the risk of detection, there would be low price variance all the same as a consequence of cartel members behaviour.

²⁵ Abrantes-Metz, Froeb, Geweke and Taylor (2006). See also discussion in Annex 1, Section 1.

²⁶ Esposito and Ferrero (2006).

²⁷ A similar exercise to the one of the AGCM was done by the Austrian Competition Authority which analysed gasoline retail prices in an EU-15 comparison. They pointed out that the results of a variance screen depend on the applied method (variance of price changes versus variation coefficient) and the type of prices chosen (gross versus net prices). Applying all possible combinations they partly received contradictory findings such as, e.g., for Finland, which showed a low variation when using the variation coefficient and showed a high variation when using the variance of price changes. They therefore concluded that further assistance from academics was needed before such methods could be successfully applied to Austrian gasoline markets. (see Sharma and Kaltenbrunner 2008, as described in Laitenberg and Huschelrath 2011).

²⁸ The association had adopted decisions (i) restricting individual discounting policies, (ii) recommending sale price lists, (iii) creating a commission in charge of monitoring prices in other distribution channels and of defining the recommended price list, (iv) inviting members to follow the producers' listed prices, and (v) limiting advertising activities of the members.

2.4 *Brazil*

In order to deal with an increasingly high number of complaints on alleged anti-competitive behaviour in the gas retail market,²⁹ the Brazilian Competition Policy System (SBDC) developed screens to separate cases worth of further investigation from complaints to be rejected because ill-grounded.³⁰ Complaints to the SBDC were based on common concerns by consumers: (i) similarity in retail prices, (ii) retail price adjustments that were almost simultaneous or occurred within close dates, and (iii) prices or margins in one city were higher than those in adjacent or nearby cities. The SBDC was faced with a difficult choice because while these signs could indicate the existence of a cartel, a similar outcome could be expected (even in the absence of explicit collusion) in markets with a concentrated supply, a high degree of price transparency and product homogeneity, and extensive vertical relationships. These were precisely the characteristics that fuel retail markets show in Brazil as well as in most economies around the world.³¹

In order to deal with the many complaints it receives every year, the SBDC decided to screen all the complaints based solely on economic evidence before deciding whether to pursue the complaint and open a formal investigation or not. The screen methodology includes three statistical tests:³² (i) an analysis of the evolution of the retail profit margins of the city where the alleged cartel operates; (ii) an analysis of the correlation between the retail margins and the coefficient of variation (level of dispersion in prices) for the city; and (iii) an analysis of the correlation between the retail profit margin of the city compared to the retail profit margin of the respective state. The methodology assumes that all the three tests are performed and that the analysis can give two opposite result: (i) no likelihood of a cartel (i.e. reduction in the retail margins from time to time, a positive association between increases in the margins and price variability, and retail margins that evolve similarly to the state average); or (ii) likelihood of a cartel (i.e. increase of the retail margins over time; a negative association between the retail margins and price variability, and retail margins with a disparate evolution or an evolution that is not similar to the State average).

The screen quickly became an effective tool to analyse and eventually reject groundless complaints. In a limited number of cases, the results of the screening programme allowed to flag possible cartel behaviour. Fig. 2.d below, for example, shows the screen results for the investigation in the gas retail market of the city of João Pessoa, in the State of Paraíba.³³

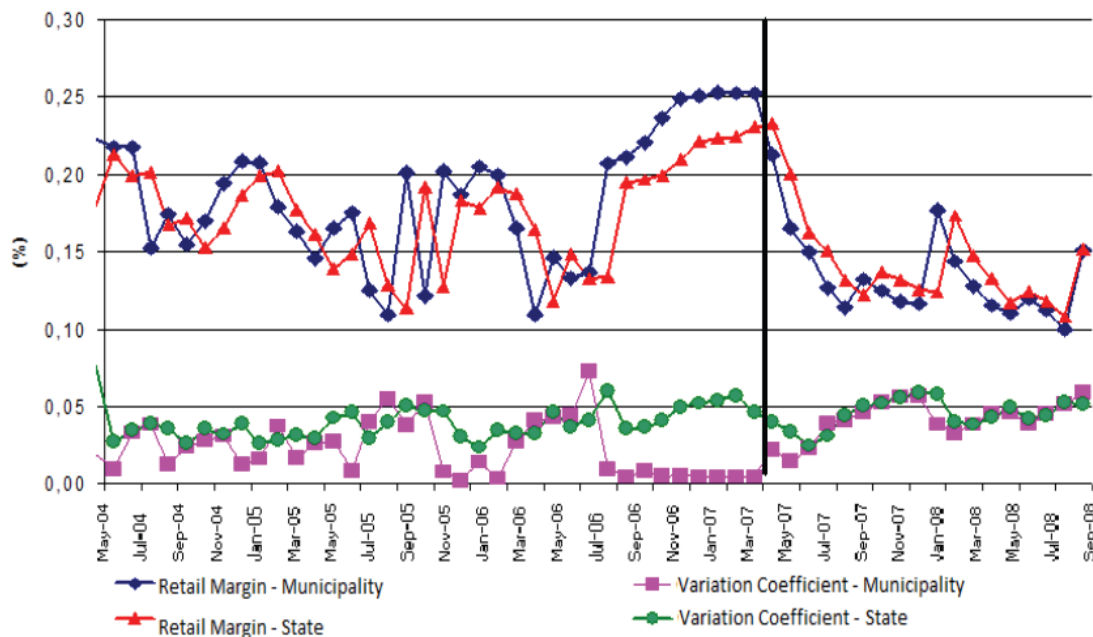
²⁹ According to Ragazzo (2012), in 2010 approximately 23% of the pending cases concerned alleged cartelisation of the fuel retail market; and of the 370 administrative procedures that were sent to CADE for final judgment between 2007 and 2009, 56 (i.e. 15%) dealt with the same market.

³⁰ Ragazzo (2012).

³¹ OECD (2013) (forthcoming).

³² The screen can be effectively implemented because the fuel retail market is a sector which is rich with data. Average prices and margins for consumers (and also average prices practiced by fuel wholesalers) are made available by the Petroleum National Agency, a regulatory agency that monitors and collects and releases data on a wide number of cities.

³³ The graph shows what happened with the retail margins after the Brazilian Competition Authorities and the Federal Police raided the companies under investigation in May 2007.

Fig. 2.d – Fuel retail margin (Municipality of João Pessoa; State of Paraíba, Brazil)

Source: Ragazzo (2012).

3. Examples of screens used by regulators and other supervisory agencies

Screens have been developed and implemented not only to detect possible anti-competitive behaviour but also to detect a wide variety of other illegal conduct, such as manipulations of stock and commodities prices and indices, revenues management, stock options back-dating, insider trading, tax evasion, and various types of accounting manipulations. Many regulators and supervisory agencies make regular use of screens in their enforcement and monitoring responsibilities, also thanks to the large amount of data at their disposal. This is often the case of regulators and supervisory agencies in financial markets, where they are responsible for detecting and investigating financial crimes,³⁴ and of agencies supervising the correct functioning of securities and other commodities trading markets.³⁵ In many countries central banks, the treasury and tax authorities are also making use of screens on a regular basis in their monitoring and supervisory functions.³⁶

³⁴ Screens also first flagged Bernie Madoff's fraudulent scheme in 1999 through the observation that returns were always higher than any other observable returns in other asset classes, they were almost perfectly steady and they did not react to market and economic conditions (see Abrantes-Metz, 2013). The fraud (also called Ponzi scheme) involved the payment of returns to investors from their own money or the money paid by subsequent investors, rather than from profit earned by the individual or organization running the operation. New investors are attracted to the scheme by the prospect of high returns in the form of short-term returns that are either abnormally high (compared to similar other investments) or unusually consistent.

³⁵ In the United States, this is for example the case U.S. Securities and Exchange Commission and the U.S. Commodities Futures Trading Commission.

³⁶ For example, in the United States, the U.S. DOJ has set up in 2006 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, labour mischarging, and bid-

3.1 *U.S. stock options back-dating and spring-loading cases in mid-2000s*

In the United States, in the mid- and late-2000's several cases were initiated for alleged manipulations of stock options by way of back-dating³⁷ or spring-loading.³⁸ These cases were triggered by the development of an empirical screen for stock options back-dating.³⁹ The screen was based on observations that stock excess returns tended to be negative before executive option grants and positive after such grants.⁴⁰ These patterns of excess returns were interpreted as due to the back-dating of stock options grant dates. The U.S. Securities and Exchange Commission (U.S. SEC) acted upon this evidence and required that stock options grants be reported within two business days. This broke the unusual pattern in stock excess returns and for the cases in which stock options grants were reported within one day of the grant date the pattern completely disappeared. Excess returns continued to exist for grants reported with longer lags, with the magnitude of the effect typically increasing with the reporting delay.

The implementation of this screens at company level allowed the detection of several back-dating and spring-loading cases, triggering regulatory investigations and private litigation.⁴¹ For example, in 2006, LAMPERS, a pension fund responsible for managing and investing current and retired employees of the Louisiana Police Force sued Countrywide Financial Corporation alleging several instances of spring-loading. LAMPERS case was based on the Lie's back-dating and spring-loading screen detecting particular days as red flags for the potential illegal behaviour. The court accepted the use of this screen. The existence of these patterns showed by the screen was used as evidence that Countrywide's executives had used inside information to ensure excess returns from the option grants.

3.2 *The 1998 manipulation of NASDAQ*

The screen developed in 1994 by Christie and Shultz to detect abnormal patterns of odd eighths avoidance in the NASDAQ inside spreads⁴² triggered an investigation by the U.S. DOJ on potential illegal behaviour in U.S. financial markets and an investigation by the U.S. SEC. The U.S. DOJ alleged that the understanding among NASDAQ dealers on how bids and asks would be displayed on NASDAQ had the purpose to raise, fix and stabilise the inside spread on a substantial number of NASDAQ stocks. Although the manipulation did not arise from an express agreement, these practices by market makers directly harmed the NASDAQ market, other market participants, and the investors.

rigging. (See <http://www.usdoj.gov/criminal/npftf/>). The U.S. DOJ has also engaged in pro-active 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. In the past, the U.S. DOJ attempted to set up a systematic screening programme for public procurement tenders bases on the so-called "Identical Bid Unit" to detect and deter collusion in public tenders. The programme was abandoned after six years and with meagre results. (See the U.S. submission to this roundtable [DAF/COMP/WD(2013)117]; see also discussion in Abrantes-Metz and Bajari, 2012)

³⁷ The back-dating of employee stock options refers to the grant of the options effective at a date actually prior to the date they are physically given.

³⁸ Spring-loading refers to a practice in which options are granted ahead of positive news or to the withholding of positive news until after the options are granted.

³⁹ Lie (2005).

⁴⁰ A description of these cases and the role of screens in supporting the allegation can be found in Abrantes-Metz (2010).

⁴¹ Abrantes-Metz (2010) discusses the legal battle of screens in stock options backdating and spring-loading.

⁴² See Annex1, Section 4.

According to U.S. SEC's Report Pursuant to Section 21(a) of the Securities Exchange Act of 1934 Regarding the NASD and the NASDAQ Market, "[a]dherence to the pricing convention often affected the prices reflected in the Nasdaq quotes, thereby impacting the fairness and accuracy of quotation information disseminated in the market and interfering with the economically efficient execution of transactions. The convention also impaired the ability of investors to ascertain the best market for their trades, increased the costs of transactions, and resulted in unfair discrimination among classes of market participants. The undisclosed activities of market makers that coordinated price quotations, transactions in securities, and the timeliness and sequence in which they reported trades, misled market participants and customers, impaired disclosure of the quotations and prices at which dealers were actually willing to buy and sell, and lessened the ability of investors and other market participants to obtain competitive prices. The interests of market participants in accurate, fair, and reliable pricing were not served. Moreover, the duties that those market makers owed to their customers were compromised by undisclosed sharing of customer information and the repeated failure to honor quotes or report trades promptly or with appropriate designations."⁴³

3.2 The 2008 manipulation of the LIBOR index

The U.S. DOJ, the U.S. SEC and the U.S. Commodities Futures Trading Commission (U.S. CFTC) are investigating the possible manipulation of the U.S. dollar LIBOR by major banks.⁴⁴ Other regulatory agencies worldwide have followed suit and are looking into possible manipulations of LIBOR denominated in other currencies, and similar benchmarks (e.g. EURIBOR in Europe and TIBOR in Japan). These investigations were triggered by the application of empirical screens by the Wall Street Journal (WSJ) in April and May of 2008 and by Abrantes-Metz, Kraten, Metz and Seow in August of 2008,⁴⁵ which all flagged suspicious and unusual patterns in the quotes submitted by the banks involved in the setting of the LIBOR index.⁴⁶

Box 2.c - The London Inter-Bank Offered Rate

Established in 1986, the London Inter-Bank Offered Rate (LIBOR) is the average interest rate estimated by leading banks in London that they would be charged if borrowing from other banks. Along with the EURIBOR, LIBOR is the main benchmark for short-term interest rates around the world and serves as a benchmark for numerous financial instruments, involving literally trillions of dollars' worth of transactions.⁴⁷ In addition to derivatives contracts, LIBOR is the reference rate for numerous consumer lending products such as mortgages, credit cards, student loans, and many more.

LIBOR is calculated for ten currencies and is published daily by the British Banking Association (BBA), based on quotes received from a panel of 16 banks for each currency selected by the BBA. Each business day, the banks on a given LIBOR Contributor Panel are asked to answer the following question, with regard to the currency for which the bank sits on the Contributor Panel: 'At what rate could you borrow funds, were you to do so by asking for and then accepting inter-bank offers in a reasonable market size just prior to 11 am?'⁴⁸ The quotes are then ranked in descending order and the daily rates are obtained by calculating the arithmetic mean of the middle two quartiles for each currency and maturity set.⁴⁹

⁴³ Available at <http://www.sec.gov/litigation/investreport/nd21a-report.txt>.

⁴⁴ In the US, the U.S. CFTC started investigating the allegation of manipulation of LIBOR in 2008; later in 2011 one of the major banks under investigation decided to enter the immunity programme of the U.S. DOJ.

⁴⁵ Their initial paper was later refined and published in 2012 (Abrantes-Metz, Kraten, Metz and Seow, 2012).

⁴⁶ Abrantes-Metz, Kraten, Metz and Seow (2012).

⁴⁷ In re: LIBOR-Based Financial Instruments Antitrust Litigation, 2013 U.S. Dist. LEXIS 45909, 31.

⁴⁸ In re: LIBOR-Based Financial Instruments Antitrust Litigation, 2013 U.S. Dist. LEXIS 45909, 29. Every member of each panel is asked this question regarding to fifteen different maturities. Id.

⁴⁹ In re: LIBOR-Based Financial Instruments Antitrust Litigation, 2013 U.S. Dist. LEXIS 45909, 30.

As widely covered by the media, a number of enforcement agencies in different jurisdictions, including some competition agencies, are in the process of investigating the alleged manipulation of the LIBOR index by the participating banks. The LIBOR investigations and private litigations are considered the most important example of how screens can be used to detect possible manipulations and conspiracies.⁵⁰ The on-going probes have already resulted in some banks agreeing to pay millions of dollars in fines as well as in damages from civil suits. The manipulation apparently took the form of suppressing the LIBOR, with the aim of concealing financial difficulties which were experienced by some banks.⁵¹ As reported by the WSJ, who first uncovered possible manipulations of LIBOR, “[s]ome banks don’t want to report the high rates they’re paying for short-term loans because they don’t want to tip off the market that they’re desperate for cash.”

3.2.1 Detecting likely LIBOR manipulations – Phase I (early detection)

In April 2008, the WSJ published an article raising concerns about LIBOR “becoming unreliable”.⁵² Whereas this first article was mainly based on various sources in the banking industry, a second article from May 2008 provided some economic analysis which indicated that something might have been wrong with the setting of the LIBOR rate. According the WSJ report, until January 2008 “the cost of insuring against banks defaulting on their debts moved largely in tandem with Libor -- both rose when the market thought banks were in trouble”. But “as fears grew about possible bank failures, the two measures began to diverge, with reported Libor rates failing to reflect rising default-insurance costs [...]”.⁵³ The WSJ also noted that “during the first four month of [2008], the three-month borrowing rates reported by the 16 banks on the Libor panel remained, on average, within a range of only 0.06 percentage point – tiny in relation to the average dollar Libor of 3.18%.”

The first and central element of the WSJ’s analysis combined two general approaches to screening discussed in the literature: (i) comparing the observable performance and outcomes of the market allegedly affected by the manipulation (in this case, LIBOR) against an appropriate benchmark (the default insurance market) across time choosing a comparable benchmark;⁵⁴ and (ii) finding “structural breaks” in firms’

⁵⁰ According to Abarantes-Metz, “it is likely that LIBOR manipulation and conspiracy may never have been uncovered had screens been used” (Abrantes-Metz, 2013).

⁵¹ Barclays Bank, which is among the banks which settled their case with the U.S. DOJ agreed to the following statement: “Senior managers within Barclays expressed concern about the negative publicity. The managers on the money markets desk and in the treasury department who gave the instruction to submit lower LIBORs, which resulted in improperly low LIBOR submissions, sought to avoid inaccurate, negative attention about Barclays’s financial health as a result of its high LIBOR submissions relative to other banks. Those managers wanted to prevent any adverse conclusions about Barclays’s borrowing costs, and more generally, its financial condition, because they believed that those conclusions would be mistaken and that other Contributor Panel banks were submitting unrealistically low Dollar LIBORs. Those Barclays managers sought to avoid what they believed would be an inaccurate perception that Barclays was not in good financial shape when compared to its peers. Thus, Barclays engaged in this misconduct in order to reduce the reputational risk associated with proper, higher LIBOR submissions. In other words, as Barclays employees stated in internal communications, the purpose of the strategy of under-reporting Dollar LIBORs was to keep Barclays’s ‘head below the parapet’ so that it did not get ‘shot’ off.” (Statement of Facts incorporated by reference as part of the non-prosecution agreement, dated June 26, 2012, between the United States Department of Justice, Criminal Division, Fraud Section, and Barclays Bank PLC (<http://www.justice.gov/iso/opa/resources/9312012710173426365941.pdf>), para. 40.

⁵² Carrick Mollenkamp, *Bankers Cast Doubt on Key Rate Amid Crisis*, WSJ April 16, 2008.

⁵³ Carrick Mollenkamp & Mark Whitehouse, *Study Casts Doubt on Key Rate*, WSJ May 29, 2008

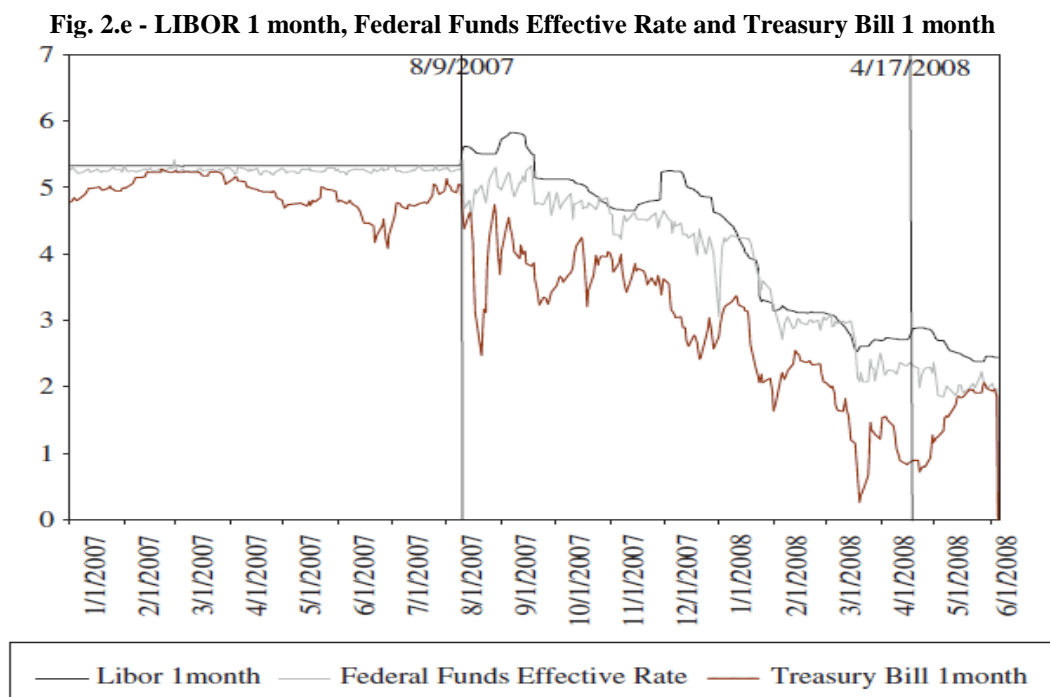
⁵⁴ E.g. ABA (2010).

behaviour (around January 2008).⁵⁵ The second element of the analysis focused on the actual rates submitted by the banks, which, according to, Prof. Duffie (one of the independent academics who reviewed the WSJ's methodology), were "*too similar to be believed*".

3.2.2 Detecting likely LIBOR manipulations – Phase II (the application of screens)

Prompted by the WSJ articles and by the suspicions they described, a number of academic papers applied different screening techniques to test the likelihood that banks may have actually manipulated the LIBOR index.⁵⁶ These papers compared the LIBOR with other short-term borrowing rates and individual quotes by banks against measures of their individual costs and also analysed the intra-day variance of banks' individual quotes. They analysed data over the period between January 2007 and May 2008, and identified two important dates, August 9, 2007 (news reports on the spread of the financial crisis and central banks' intervention) and April 17, 2008 (announcement of BBA's intention to investigate possible manipulation of the LIBOR), which could serve as candidate dates for a structural break in banks' quoting decisions.⁵⁷

The first type of observation that screens revealed was that when looking at the 1-month LIBOR for the period January 2007 to the end of May 2008, as well as other benchmark indexes such as the Federal Funds Effective (FFE) Rate and the 1-month Treasury Bill (T-Bill), two striking features emerged (see Fig. 2.e below): (i) the nearly constant LIBOR for at least 7.5 months and (ii) the different volatility pattern between the LIBOR rate and the benchmark rates T-bill and Federal Funds Rate, when no reason seemed to justify such pattern differences.



Source: Abrantes-Metz and Bajari (2011)

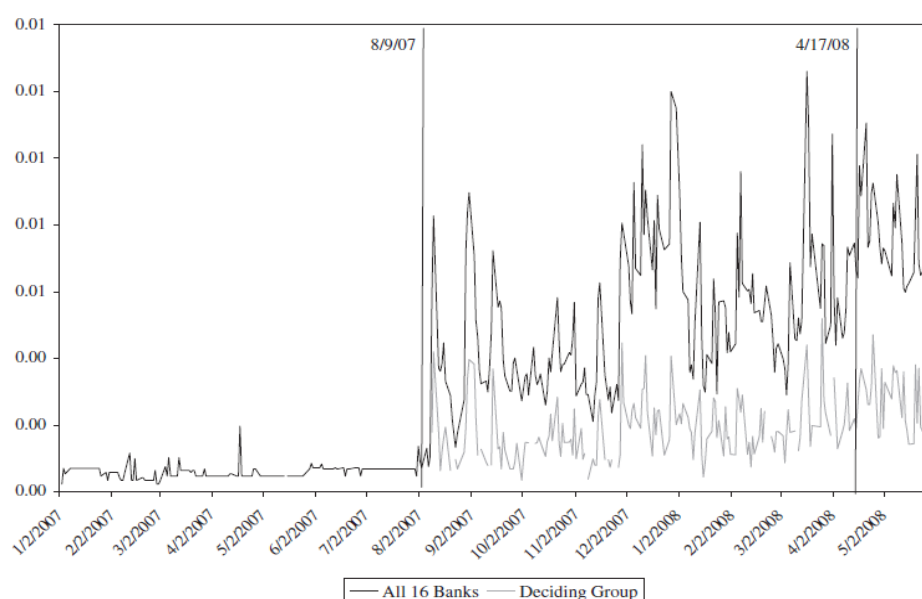
⁵⁵ Harrington (2008).

⁵⁶ Abrantes-Metz, Kraten, Metz and Seow (2012), Abrantes-Metz and Metz (2012), Abrantes-Metz, Bajari and Judge (2011).

⁵⁷ Abrantes-Metz, Kraten, Metz and Seow (2012).

A second element that screens revealed about LIBOR was the correlation of 100% among individual quotes of the majority of the banks submitting sealed (!) quotes. The analysis of the individual quotes submitted by the banks and the analysis of the intra-day variance of quotes provided some apparently abnormal results: individual quotes appeared to be very similar in the period preceding August 9, 2007, while quotes were much more varied afterwards; in addition, “owing to the large number of identical quotes”, it appeared that “the vast majority of the banks joined the deciding group more than 95% of the time”, and that “the composition of the deciding group is relatively constant” over said period. The picture was rather different when looking at later periods, as shown by Fig. 2.f below.⁵⁸

Fig. 2.f - LIBOR 1 month: cross-sectional coefficient of variation for banks' quotes



Source: Abrantes-Metz, , Kraten, Metz and Seow (2012).

To show that these results were indeed the outcome of a manipulation and not the effect of some form of tacit parallelisms between the banks, Abrantes-Metz and Metz analysed individual banks quotes for specific periods of time.⁵⁹ Table 2.g and Table 2.h below list the individual quotes for the first days of August 2006 and list the unique values that determined the LIBOR on those days, and the number of banks that shares that quote.

⁵⁸ Abrantes-Metz, Kraten, Metz and Seow (2012).

⁵⁹ Abrantes-Metz and Metz (2012).

Table 2.g - Individual quotes from early August 2006

	2006				
	August 3	August 4	August 7	August 8	August 9
BTMU	5.410	5.430	5.370	5.370	5.330
Bank of America	5.400	5.420	5.380	5.370	5.325
Barclays	5.410	5.420	5.370	5.370	5.340
JPM Chase	5.410	5.420	5.380	5.370	5.330
Citi Bank	5.405	5.420	5.360	5.370	5.330
CSFB	5.405	5.420	5.360	5.370	5.330
Deutsche Bank	5.405	5.415	5.365	5.365	5.325
HBOS	5.410	5.420	5.350	5.370	5.330
HSBC	5.400	5.420	5.370	5.370	5.330
Lloyds	5.410	5.420	5.360	5.370	5.330
Norinchukin	5.410	5.420	5.370	5.370	5.340
Rabobank	5.405	5.415	5.370	5.370	5.330
Royal Bank of Canada	5.405	5.420	5.370	5.368	5.330
Royal Bank of Scotland	5.400	5.420	5.370	5.370	5.330
UBS AG	5.405	5.420	5.370	5.370	5.330
West LB	5.405	5.460	5.360	5.370	5.330

Source: Abrantes-Metz and Metz (2012). Highlighted are the quotes that were excluded from the calculation of LIBOR.

Table 2.h - The distribution of “middle 8” quotes

	2006				
	August 3	August 4	August 7	August 8	August 9
Value 1	5.405	5.420	5.360	5.370	5.330
<i>Count</i>	7	12	4	14	12
Value 2	5.410		5.365		
	6		1		
Value 3			5.370		
			8		

Source: Abrantes-Metz and Metz (2012).

The observation of this data showed clearly that banks submitted largely the same quote day after day, and that they were not “learning and converging” toward that common quote, rather they submitted an identical (sealed!) quote one day, and then submit an identical but different (sealed!) quote the next day. The authors, for example, note that on August 3, seven banks submitted the quote 5.405 and six banks submitted the quote 5.410. But then on August 4, twelve banks submitted a quote of 5.420 - different from any of the quotes submitted the previous day. On August 7, there were three different values that were part of the “middle eight” quotes on that day, 5.360 (submitted by four banks), 5.365 (submitted by one bank) and 5.370 (submitted by eight banks). But then on August 8, fourteen of sixteen banks submitted a quote of 5.370. This was taken as evidence that these patterns were not the effect of a tacit behaviour, but rather that of an explicit understanding between the banks to manipulate the quotes.

The last interesting result from the application of screens to the LIBOR manipulation emerged from the comparison of banks’ credit default swaps (CDS) spread, which appeared to correspond to banks’ financial stability, with individual banks’ LIBOR quotes, which can also be perceived as an indicator of

banks' risk.⁶⁰ It appeared that for some banks, counter to what one would expect under normal circumstances, there was a negative correlation between individual LIBOR quotes and banks CDS spread. In other words, for some banks, two indicators of risk were pulling in different directions at the same time. This too suggested that LIBOR may have been artificially suppressed. In the same paper, the authors also observed variations in banks' market-implied bond ratings provided by Moody's, which "*transform market indicators such as bond prices into a scale comparable to credit ratings*". Given this variation implied that different banks presented different degrees of risk, "*we would not expect to observe the banks' Libor quotes to be completely identical on a daily basis*" like they were in the period before August 9, 2007. The authors further noted, that while the variance in market-implied bond ratings increased between January and August 2007, the variance between banks' LIBOR quotes did not, and that the drastic change in variance in the LIBOR after August 9, 2007, was not explained by the slight increase in the variation in market-implied bond ratings. Once again, two indicators of banks' health appeared to be performing inconsistently.⁶¹

Finally, the LIBOR was analysed in light of the Benford's Law.⁶² According to Benford's First Significant Digit Law, "in many naturally occurring numerical data sets, the leading digits are not uniformly distributed but instead follow a logarithmic weakly monotonic distribution." Studies have shown that the law applies to "a surprisingly large number of data sets, including populations of cities, electricity usage and the daily returns to the Dow Jones. Market data reflect nominal values that often do not vary much over limited periods of time."⁶³ While the LIBOR's first digit did not vary much, the authors expected the second and following digits to vary according to Benford's Law. It appeared that while LIBOR's second digits had followed the path of Benford's Law distribution rather closely for two decades, a significant divergence was observable over most of the period between February 2006 and October 2008. This divergence again suggested to the authors some artificial interference with the LIBOR index.

⁶⁰ Abrantes-Metz, Kraten, Metz and Seow (2012).

⁶¹ Abrantes-Metz, Kraten, Metz and Seow (2012).

⁶² Abrantes-Metz, Villas-Boas and Judge (2011).

⁶³ See Annex 1, Section 4.

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AUSTRALIA

1. Introduction

Most of the Australian Competition and Consumer Commission's cartel investigations begin with applications under the *ACCC Immunity Policy for Cartel Conduct*, but a reasonable number arise from analysis of complaints, media tracking and other forms of self-originated investigation. This paper will focus primarily on one particular form of *ex officio* work within the ACCC, which is in the development and trial stages, namely the intelligence-initiated investigation.

The ACCC is directing resources to assessing the processes for identifying and assessing specific industries in Australia for susceptibility to collusion. On occasion the ACCC becomes aware of collusion (and even the identity of potential cartel participants) from this intelligence-based work alone.

Although an investigation may be prompted entirely from this type of susceptibility assessment, its greatest value is likely to be found in combination with other measures, such as procedures for assessing individual complaints, the operation of the immunity policy, and in directing certain advocacy work of the ACCC. In particular, individual complaints and the results of intelligence work serve to corroborate each other, and on some occasions complaints also form part of the data used in the susceptibility analysis. Advocacy is known to play a key role in cartel detection in prompting immunity applications - intelligence work is expected to be an additional tool in identifying where to target that advocacy most effectively.

In short, there are relationships of direct complementarity across: 1. the intelligence work, 2. advocacy, and 3. the immunity policy. In addition, there is the potential for intelligence initiatives to serve as self-standing tools in the initiation of cartel investigations.

This paper outlines the progress of the recently developed ACCC's intelligence methodology, then describes in more detail the inter-relation between intelligence work, advocacy, the immunity policy and other available measures.

2. The role of intelligence - the ACCC Cartel Intelligence Project

The ACCC has developed an intelligence methodology for identifying and examining industries and sub-sectors domestically for susceptibility to collusion, under what is known as the *Cartel Intelligence Project*. The methodology was based on the *International Cartel Network Manual on Proactive Cartel Detection Techniques*,¹ specifically the text on industry studies and the analysis of economic factors. The ACCC developed and implemented a pilot methodology in consultation with in-house economists, in the following four phases.

¹ International Cartel Network Manual on Proactive Cartel Detection Techniques, March 2010, Chapter 4, Cartel Case Initiation.

2.1 *Phase 1 – Filter: Initial selection of industries*

An initial selection of industries was drawn from the United Kingdom Office of Fair Trading's (UKOFT) paper, *Predicting Cartels*². This used a variety of methods to formulate a ranking of the top 37 industries with the highest relative probability of collusive behaviour. The UKOFT list was considered a good starting point because of certain similarities with a number of Australian industries, after the most obvious divergences were filtered out.

A filtering process was applied to exclude particular industries that were not significant or were non-existent in Australia (eg weapons manufacturing), and to remove those industries that were either being monitored by the ACCC under industry-specific functions or were the focus of separate ACCC projects.

The filtering process was also guided in part by work by John M. Connor³ which similarly involved a comparison of industries from known cartel cases over the previous 20 years, highlighting the most prevalent industries, product types, and repeat offenders.

The ACCC then subjected to preliminary enquiry the industries that were remaining after the filtering process. It analysed the economic structural 'plus' factors of each industry (as highlighted in the UKOFT paper, such as product homogeneity, high barriers to entry, concentration of a market) and their relevance in Australia. By this process the list of 37 was reduced to a shortlist of eight industries.

Of these, the top two industries which were seen as potentially the most detrimental to the economy were chosen for a pilot study.

2.2 *Phase 2 – Prioritise and Identify*

These two industries were examined in depth and were subdivided into a large number of product subsectors. These were subjected to further prioritisation and filtering. Consequently, a total of 12 product sub-sectors were isolated (according to relevance to Australia and highest risk of collusion).

2.3 *Phase 3 – Collection and Research*

The third phase involved the development of an Information Collection Plan to streamline data collection and to facilitate analysis of each of those twelve prioritised sub-sectors. Seven structural and behavioural characteristics informed the process of data collection in this phase:

1. *main product characteristics* including degree of homogeneity, whether an intermediate product, features of aggregate demand and any expected growth in demand.
2. *profile of main manufacturers in Australia* including location, size, history, complaints, barriers to entry, technological changes, structural links, transparency of pricing, prominence of industry association and interaction between players.
3. *actual and potential competition* from imports and other domestic firms.
4. *key product users* in Australia including size, location, purchasing arrangements, ability to stockpile the product,⁴ and buyer power

² *Predicting Cartels*: Economic discussion paper prepared for UKOFT, P Grout & S Sondregger (2005).

³ *Recidivism Revealed: Private International Cartels 1990-2009*, John M Connor (2010).

5. *demand side substitution* including potential substitutes and cost and availability of imports
6. *pricing anomalies*, including current prices, market shocks, pricing in equivalent countries, price stability and pricing behaviour, and
7. *output anomalies*, including potential market sharing and production levels.

Reference material included Ibisworld reports, Australian Business Register entries, and information available from company and industry association websites, international research councils and commodity trading websites. Information that was extracted included relevant price and sales histories, output and production data, market share (growth and historical), profit and revenue, primary market location, primary customers/clients, method of sales (eg long or short term contracts), and involvement in tenders, (public or private).

The ACCC also interrogated its own internal data, and the resources of other government departments available for this purpose, including qualitative information concerning the industry data held by the Department of Sustainability, Environment, Water Population & Communities, and importation data held by the Australian Customs and Border Protection Services. .

2.4 *Phase 4 – Assessment*

The fourth phase involved analysis of those results, though in reality the ‘*Collection and research*’, and the ‘*Assessment*’ phases were closely interrelated and both were strongly evaluative. The results were presented in the *Assessment* phase in the form of a susceptibility rating. The rating comprised a dozen or so susceptibility factors, such as the level of competitor interaction, buyer power, complaints profiles and the history of companies and industries internationally.

The analysis of results (generated qualitatively by the Information Collection Plan) entailed the allocation of a positive, negative or blank value (the risk of collusion being positive) for each susceptibility factor. A summary was generated which consisted of an overall, collective susceptibility rating while providing visibility of the individual contributing susceptibility factors.

Among the more important individual susceptibility factors were those that indicated visible anomalies (eg in price or output, or which represent other behavioural incongruity). Each susceptibility factor was then scored. A high positive score in any of these factors would denote a ‘trigger’ for further action, in other words a clear reason to initiate and prepare a more in-depth assessment.

3. **Results from the pilot study/Interaction with complaints**

A pilot analysis such as this does not lend itself to firm or fixed conclusions but the following observations may nevertheless usefully be made.

Of the 12 product sub-sectors isolated in *Phase 2 (Prioritise and Select)*, four displayed overall a high susceptibility to collusion. So far one has resulted in an investigation, which is still progressing. One sub-sector is currently the subject of an in-depth assessment. The other two sub-sectors have been placed on a watch list to be actively monitored.

⁴ Stockpiling or excess capacity can be important variables in sustaining collusion. Excess capacity can contribute to susceptibility to collusion by creating a strategic barrier to entry. In particular, it can be deployed against a new entrant. Further, the co-ordinated restraint of supply to the market – for example restraining flow from the warehouse - can be used to manipulate price.

The matter that is under investigation was the subject of complaints to the ACCC. However, complaints comprise one of the individual susceptibility factors which contribute to the overall susceptibility rating. This means that if the methodology is to be used as an *independent* means of corroborating complaints, then that corroboration should emerge from a positive score on susceptibility factors other than complaints. The methodology did in fact produce sufficient indication of collusion, apart from complaints, for this matter to warrant investigation (notably on the issue of ‘company interaction’, in this case trade association media releases). It therefore bears out the potential for susceptibility factors, other than those based in complaints, to corroborate complaints.

Of course, the methodology would have independent merit in indicating overall a high susceptibility to collusion (as it did in these four product sub-sectors), no matter how that rating is individually composed.

In short, the methodology would appear to have potential both in corroborating complaints and in cases where significant positive results are generated in the absence of any complaints at all.

Furthermore, it is self-evident that the methodology produces potentially valuable results in cartel detection without any dependence at all on an immunity applicant.

4. Complaints analysis

Quite independently of the Cartel Intelligence Project just described, the ACCC is piloting a trend analysis methodology for analysing complaint data. The ACCC receives approximately 140,000 complaints and other relevant contacts annually at the Infocentre. More than 80% of these relate to consumer protection and scams. A recent case study performed by the ACCC identified several factors which can impede the existing detection of collusion using complaint data. These factors are: where collusion is not the main issue identified by the complainant; where complaints may not be categorised according to all the issues potentially relevant to the complaint; and where broader patterns of conduct may not be recognised. It is possible, for instance, that a pattern of complaints categorised as consumer issues may reveal some underlying collusion.

The trend analysis involves a combination of screens and filters to identify individual or groups of complaints that may indicate collusion. A number of filters are being piloted including:

- *All Competition matters* – This involves a re-examination of complaints, which are categorised as competition matters including industry-wide trends.
- *Keyword analysis* – This focuses on collusion, and applies a range of competition-focused keywords to identify and analyse competition and collusion.
- *Multiple trader complaints* – This examines complaints involving two or more traders for trends which may indicate coordinated conduct or industry-wide issues.

While each of the filters may identify issues or trends independently, collectively they are likely to contribute to a broader analysis of collusive and/or anti-competitive conduct.

5. The role of advocacy in cartel detection

Historically, a number of cartel investigations have been the result of media tracking or intelligence-related tools, including complaint analysis, but these are relatively few. Most immunity applications have

been made without any prior inkling on the part of the ACCC, and without specific action by the ACCC. Some applications, however, have been the direct result of advocacy work undertaken by the ACCC.

Examples of this are found in the responses to ACCC awareness campaigns warning of the unlawfulness of bid-rigging in public procurement. One of a number of these was directed at bid rigging in public infrastructure projects. General Counsel, procurement officers and auditors of selected government agencies (both State and Commonwealth) were given training to detect and report possible collusion among suppliers. Although bid-rigging was expected to be the most common conduct affecting procurement, the programme equally emphasised price-fixing, market sharing and output restrictions and the reality that cartels often comprise a combination of these.

The ACCC provided information to assist agencies to take a range of steps to mitigate the risk that their budgets would be the subject of cartel conduct. These included distribution to potential tenderers of an ACCC guide entitled “*Cartel Conduct - How it affects you and your business*” to alert them to the consequences of engaging in cartel conduct. In addition, agencies were encouraged to include prominent certification requirements at every stage of the tender process, requiring bidders to confirm that they had not discussed price or other information with another tenderer. As a result, one tenderer in a public procurement process became nervous about giving the certification and chose instead to become an immunity applicant. In another, the ACCC became aware of cartel conduct when a former employee of a tenderer became the whistle-blower and provided information to the ACCC. This matter led ultimately to the award of significant penalties.

As part of a more generalised awareness campaign, the ACCC recently released a short fictional film titled, *The Marker*, that dramatises the devastating effects involvement in a cartel can have on individuals and business. The film shows how cartel activity can ruin relationships, careers, reputations and long term financial security, and may ultimately land guilty parties in jail. The ACCC has sent *The Marker* to CEO’s at 300 of Australia’s largest companies advising them to show it to employees at all levels of their business.⁵

6. Conclusion

At the outset it was acknowledged that one strategic role of the intelligence susceptibility tool is in combination with advocacy and the immunity policy.

The cartel susceptibility tool represents a valuable resource in performing two separate functions. First, it may itself be the means of cartel detection and resultant investigation. However, it is too early to judge its effectiveness in this regard. Secondly, it may provide the necessary information to justify an awareness campaign in particular industry sectors, which may in turn provoke immunity applications if not also destabilise cartels. It is in this context that the methodology and the role of advocacy play a powerful complementary role.

⁵ The Marker is available to view on the ACCC’s website: <http://www.accc.gov.au/publications/cartel-the-marker-dvd>.

BULGARIA

The achievements in cartel detection cannot be attributed uniquely to proactive or reactive detection methods, but are rather a result of the competition authority's perception of balance between the two. In Bulgaria, there have been discussions about the use of empirical screens by competition authorities as a proactive detection and deterrence method. Many believe that this is a way to get a more in-depth analysis of possible anticompetitive behavior between undertakings.

The Bulgarian Commission on Protection of Competition (the CPC) utilizes two general ways in order to detect cartels. The first one focuses on the means by which the undertakings coordinate, whilst the second follows the end result of that coordination. The combination between the two along with the adoption of guidelines on collaborations which are likely to be anticompetitive, leniency programs and general business community education is what attests for a more effective and enhanced anti-cartel policy. One might agree that cartel screens also represent an important cornerstone in the proactive competition approach. Although application of cartel screens by the CPC is limited, the authority still provides certain deterrence measures for public procurement officials.

This note will therefore present the approach the CPC adopts when facing anticompetitive arrangements between undertakings to implement its effective and enhanced anti-cartel policy (I) before examining the CPC cooperation with public procurement bodies (II).

1. The steps to an effective and enhanced anti-cartel policy

At a first stage, it is necessary to study the combined methods the CPC applies to discover prohibited agreements (A) before explaining the role of the recent developments in its practice (B).

A. *Combined application of proactive or reactive methods*

The CPC strongly shares the view that combining deterrence and cartel detection policies is the key to a successful anti-cartel strategy. In this respect, the CPC performs regular sector inquiries which occasionally lead to prohibited agreement proceedings. A typical example of this are several recent cases, started after performed sector inquiries, namely the *Hyundai case*¹ (still pending before the review court), imposing the largest sanction in CPC history, started after a study of the automobile distribution market² and the *Sunflower oil case* for vertical agreements to impose resale prices³, started after a study of the market of oilseed sunflower and sunflower oil⁴. A third example that could be given which triggered an ex-

¹ CPC Decision № 1292/2012

² CPC Decision № 1552/2012

³ CPC Decision 844/ 2013 and 898 / 2013

⁴ CPC Decision № 686/2012

officio investigation is the sector inquiry on the market of production and marketing of wheat in Bulgaria⁵. No infringement of antitrust law has been established in the subsequent investigation⁶.

In some cases, however, the CPC adopts a clearly reactive approach. In this event the authority has received an official complaint most often by a competitor of the undertaking or undertakings in question. The means of coordination is some form of direct communication and some cartels have been detected by observing that communication. An example may be given by the *Cinemas case*⁷ which was concluded with no violation. In this case the CPC had received an official complaint by one of the competitor undertakings, had initiated proceedings and executed a dawn raid in premises of the undertakings in question.

It is argued that investigations triggered ex officio are an important complementary enforcement tool to the other passive instruments available to a competition authority. In a case concerning the conduct of the national association of constructors⁸ (*Constructors chamber case*), the latter planned to coordinate the price behavior of its members. A screening of its website revealed that three documents concerning hydro construction, high construction (housing) and road construction containing so called „*exemplary prices*” were published. The Bulgarian Competition Authority has initiated ex-officio proceedings against the Bulgarian Constructors Chamber for a prohibited decision designed to coordinate the price behavior of its members. The CPC concluded that the conduct was in violation to antitrust law.

B. Recent developments in CPC practice

The CPC has the policy of monitoring the business activities through media. Several experts from the competition authority follow recent developments in specific sectors of the market such as changes in firm’s market behaviour, prices fluctuations, newly entered market participants or other developments in the market with a view to detecting certain competition concerns. The data the authority collects are of quantitative nature or of qualitative nature on a case by case approach.

The trigger point is most often a change in prices since prices variations are a prominent element of any methodology aimed at detecting collusive behavior. Without change in costs, price increases might indicate changes in market power and hence changes in profitability, which is often the reason for collusive behavior. The CPC has initiated several cases based on an increase of price. Namely the *Dairy products case*⁹ which was initiated after an increase in retail prices of cow milk. There have also been several cases of the so-called “defensive” prices which were arranged by agreements put in place, usually through trade associations, which the CPC found to be collusive practices.¹⁰

The CPC shares the view, that combining prevention and reaction methods with corporate compliance programs, whistleblower programs, general business community education and guidelines on market conducts which are likely to be found anticompetitive, as well as leniency programs is what can lead to development in anti-cartel policy. Although the CPC has not performed classical cartel screens as such, we still provide deterrence advice in bid rigging procedures.

⁵ CPC Decision № 1125/2012

⁶ CPC Decision № 1118/2013

⁷ CPC Decision 249/ 2013

⁸ CPC Decision № 426/2009

⁹ CPC Decision № 650/2008

¹⁰ CPC decision 1150/27.12.2007 – sunflower and cooking oil; CPC decision 601/2008 – poultry products;

2. Building a framework for fight against bid rigging

This paper will first examine how the CPC has adopted certain legal frameworks in order to assist public procurement bodies in the prevention of bid rigging (A) and afterwards will stress on the CPC's practice in this field (B).

A. Guidelines to contracting authorities

The CPC has adopted guidelines,¹¹ which are aimed to suggest to contracting authorities the measures which can be taken when preparing the public procurement documentation in order to reduce the risks of bid rigging, on the first hand, and, on the other, to clarify possible categories of behavior which if they occur should caution public procurers during the bid procedure.

The Guidelines to counteract big rigging in procurement procedures specify that opposing bid rigging as a form of prohibited conduct of undertakings should, in the first place, be carried out by the contracting authorities of the public procurement. To reduce the risk of bid rigging, contracting authorities need to identify and organize the procedures in such a way as to make difficult the coordination and common action between participants. Moreover, the guidelines give several examples concerning the measures which can be taken when preparing the public procurement documentation, such as to gather information on the recent developments in the market of the bid, not to limit unreasonably the competition of the bid, etc.

The CPC guidelines are based on the understanding that the behavior of participants in a bid rigging may manifest itself in various ways, making difficult the detection and investigation of such prohibited conduct. This is why the CPC has pointed out certain types of behavior which if they occur should trigger a warning for public procurers during the bid procedure. Several examples of such red flags, without claiming to be exhaustive, can be given in this direction, most involving cover bidding,¹²¹³ bid suppression,¹⁴ subcontract agreements or market division.¹⁵

B. Cartel investigations on bid rigging

The situation where an undertaking enters into a prohibited agreement to influence the result of a bid procedure has been investigated by the Bulgarian Competition Authority in only a couple of cases so far. However, the outcome of these cases gives answer to several important questions on the CPC actions when examining such a prohibited agreement

It is important to specify that in both cases information was received by the procurers of the bid. In the first case¹⁶, an investigation was started upon request by the Ministry of Finance. The facts of the case (still pending before the review court) concerned a bid-rigging agreement, the price offers of the undertakings presented on the bid were not just similar, but were completely identical to the third decimal point. This was a sign which indicated that the only possible explanation for the behavior of companies

¹¹ <http://cpc.bg/ViewResult.aspx?type=Blob&id=3565>

¹² Dec. EC 92/204/EEC of 5.02.1992 (IV/31.572 and 32.571 - Building and construction industry in the Netherlands) [1992] OJ L 92/1

¹³ Dec. EC 73/109/EEC of 02.01.1973 (IV/26 918 - European sugar industry) [1973] OJ L140/17

¹⁴ Dec. GC T-29/92 SPO v Commission [1995] ECR II-289

¹⁵ Dec. EC 1999/60/EC of 21.10.1998 (IV/35.691/E-4 - Pre-Insulated Pipe Cartel) [1999] OJ L 24/1

¹⁶ CPC Decision № 220/2012

implicated in the bid would be an agreement to align their market behavior. There was also an anti-competitive object, which is expressed by the fact that the competing bids of the undertakings are aligned and brought to the same values. In this case the behavior of the undertakings was considered a by object violation of competition law.

The second case¹⁷ was initiated by information given by the Ministry of regional development. There were striking similarities and coincidences in the terms of two groups of documents produced by the participants in a bid procedure. However, no evidence of direct or indirect contact in the form of coherent wills exchanged between the defendants was found. The CPC indicated that filed documents with a high degree of similarity in various lots in itself raises reasonable doubt as to the possible existence of an agreement. However, in cases where there is only indirect evidence of parallel conduct among participants in a market without any data on the forms of contact or relations between competitors, a prohibited agreement or concerted practice may be established by the CPC solely where the existence of such is the only possible explanation for simultaneous market responses of the undertakings. In this case there were other possible explanations, such as common consultants, common forms etc. Thus, the CPC concluded that there was no violation of competition law.

In this respect, it should be pointed out that both cases were finalized without the obtainment of any direct evidence.¹⁸ Although, both cases involved a lack of direct evidence, the two cases differed in the approach adopted by the CPC. In the first case, there was a lack of direct evidence that a bid rigging had occurred. However, there were whistleblower signs which strongly indicated the existence of a bid rigging. In the second case there were other possible explanations for the behavior of the undertakings participating in the bid. For the above reasons an assumption could be made that in bid rigging cases, the investigations are most often concluded with only circumstantial evidence.

¹⁷ CPC Decision № 984/2013

¹⁸ A dawn raid did not take place in both cases although the competition authority had strong motif to execute a dawn raid in order to obtain direct evidence. However the possibility of a dawn raid was overruled, because in the first case information had already spread in the media and there virtually wasn't any element of surprise. In the second case a dawn raid was meaningless since the bid procedure had been halted by the Minister of regional development and the parties were notified that a procedure concerning a possible bid rigging was in place before the CPC.

CANADA

1. Introduction

Canada's Competition Bureau (the "Bureau") is pleased to provide this submission to the OECD Competition Committee's October 2013 roundtable on "Ex officio cartel investigations and the use of screens to detect cartels". The Bureau, headed by the Commissioner of Competition (the "Commissioner"), is an independent law enforcement agency responsible for the administration and enforcement of the *Competition Act* (the "Act")¹ and certain other statutes. In carrying out its mandate, the Bureau strives to ensure that Canadian businesses and consumers prosper in a competitive and innovative marketplace.

Cartels deprive Canadians of the benefits of competition, such as lower prices and increased product choice.² Therefore, cracking down on domestic and international cartels is one of the Bureau's top enforcement priorities.

The Bureau's Immunity and Leniency Programs are its most valuable tools for detecting, investigating and prosecuting cartels. However, the Bureau also relies on a variety of other proactive and reactive methods to increase its detection of cartels, such as complaints from members of the public, partnerships with other agencies, and outreach to the procurement, business and legal communities. This submission briefly discusses these and certain other cartel detection methods used by the Bureau and provides a few examples of cartel cases in which these methods have been used successfully.

2. Immunity and Leniency Programs

The Immunity Program³ has proven to be the Bureau's single most powerful means of detecting, investigating and prosecuting criminal activity under the Act. The goal of the Immunity Program is to uncover and stop criminal anti-competitive activity prohibited by the Act and to deter others from engaging in similar behaviour.

Under the Immunity Program, the first party to disclose to the Bureau an offence not yet detected or to provide evidence leading to a referral of the matter to the Public Prosecution Service of Canada (the "PPSC")⁴ may receive immunity from the PPSC, provided that it fully cooperates with the Bureau's investigation and any subsequent prosecutions. In Canada, immunity is available to both organizations and individuals.

¹ R.S.C. 1985, c. C-34.

² The cartel provisions in the Act prohibit agreements or arrangements among competitors to fix prices, allocate markets or restrict output that constitute "naked restraints" on competition (restraints that are not implemented in furtherance of a legitimate collaboration, strategic alliance or joint venture). They also prohibit foreign directives, bid-rigging and certain conspiracies relating to professional sports and federal financial institutions.

³ More information on the Immunity Program can be found online at www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03248.html.

⁴ The PPSC is the federal government organization responsible for prosecutions on behalf of the Attorney General of Canada. The Director of Public Prosecutions (the "DPP") is the head of the Public Prosecution Service and the PPSC represents the DPP in proceedings before courts of criminal jurisdiction in Canada.

Since its inception, the Immunity Program has continued to grow in success. For example, while the Bureau received 15 applications for immunity in 2011, it received 19 such applications in 2012.⁵ The Immunity Program's continued appeal to those who would otherwise remain undercover is pivotal to the Bureau's enforcement efforts.

The Leniency Program⁶ complements the Immunity Program by supporting the effective and efficient enforcement of the Act. Under the Leniency Program, the Bureau will recommend to the PPSC that applicants be granted recognition for timely and meaningful assistance to the Bureau's investigation and any subsequent prosecutions, provided that they satisfy all of the conditions of the program. While leniency applicants are not eligible for a grant of immunity under the Bureau's Immunity Program, their early admission and cooperation respecting their role in a cartel offence can earn them a substantial basis for lenient treatment in sentencing.

The Bureau's Leniency Program has been particularly successful in resolving cartel cases in a timely fashion. For example, between January 1, 2013 and September 1, 2013, the fines imposed in cartel cases in Canada totalled approximately CAD\$46.5 million. Of this amount, approximately CAD\$44 million (or 95 percent) was imposed on companies participating in the Leniency Program.

3. Other Methods of Cartel Detection

In addition to its Immunity and Leniency Programs, the Bureau uses several other methods to detect cartels. As discussed in more detail below, these methods include a dedicated Information Centre; the Criminal Cartel Whistleblowing Initiative; partnerships with police forces; outreach to the procurement, business and legal communities; proactive monitoring by Bureau employees; and increasing public awareness of the Bureau's mandate and programs. Each of these methods has proven to be successful in facilitating the detection and deterrence of cartels in Canada.

3.1 Information Centre

The Bureau's Information Centre is the primary point of contact for both requests for information and complaints from members of the public. The public can contact the Bureau through the Information Centre by telephone, fax, mail or e-mail. The Bureau also has an online form to facilitate this process. A number of the Bureau's investigations are the result of information provided by complainants, who can be consumers, businesses, informants or whistleblowers.

In 2011, the Bureau received 20,657 requests for information and complaints from members of the public through the Information Centre, of which 203 related to cartel activity. Similarly, in 2012, the Bureau received 17,798 requests for information and complaints from members of the public, of which 439 related to cartel activity.

3.2 Criminal Cartel Whistleblowing Initiative

Whistleblowers are an important source of information for the Bureau, particularly with respect to the detection of cartels. In order to encourage whistleblowers to come forward, the Act includes a specific provision protecting the identity of a whistleblower. In particular, the Act provides that "[a]ny person who has reasonable grounds to believe that a person has committed or intends to commit an offence under the

⁵ These figures include cases where cooperating parties submitted multiple requests for immunity for more than one product. In such cases, each party has been counted as a single immunity request.

⁶ More information on the Leniency Program can be found online at www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03288.html#s3_3.

Act ... may notify the Commissioner of the particulars of the matter and may request that his or her identity be kept confidential with respect to the notification”.⁷ The Act prohibits employers from dismissing, suspending, demoting, disciplining, harassing or otherwise disadvantaging an employee, or denying an employee a benefit of employment, as a result of the employee providing information on reasonable belief and in good faith to the Bureau under the whistleblower provision.⁸

Whistleblowers in Canada are also protected by other legislations, including the *Criminal Code*, which makes it an offence for an employer to take disciplinary measures against, demote, terminate or otherwise adversely affect the employment of an employee, or to threaten to do so, because the employee has provided or will provide information to a person whose duties include the enforcement of federal law.

The Bureau recently launched its Criminal Cartel Whistleblowing Initiative.⁹ This initiative increases awareness of the whistleblowing provisions in the Act and provides an additional method for members of the public to report alleged cartel activity to the Bureau. The primary objectives of this initiative are to increase the quality and quantity of whistleblower reports and to increase the number of cases originating outside of the Immunity Program.

3.3 *Partnerships with Police Forces*

The Bureau has partnerships with several Canadian police forces that complement and support the work of the Bureau. Specifically, the Bureau continues to strengthen its ties with the white-collar crime investigation units of various police forces. The Bureau believes that the police officers working in these units may come across evidence of cartel activity in the course of their investigations that can be provided to the Bureau to pursue cartel investigations.

By way of example, in 2011, the Quebec provincial police force, the Sureté du Québec (the “SQ”), created a Permanent Anti-Corruption Unit (“UPAC”). UPAC’s mandate involves, among other things, coordinating investigations of corruption and collusion in the Quebec public system. In June 2012, following a joint investigation by UPAC and the Bureau, a total of 77 charges were laid against nine companies and 11 individuals in the construction industry in connection with a collusion scheme in the Saint-Jean-sur-Richelieu region in Montreal. These charges included 20 counts of bid-rigging against nine companies and 24 counts of bid-rigging against six individuals.¹⁰

The Bureau’s close relationships with the SQ and the Royal Canadian Mounted Police, Canada’s national police force, have also led to the detection of several other cartels.

3.4 *Outreach in the Procurement, Business and Legal Communities*

The Bureau regularly provides outreach presentations to the procurement, business and legal communities in Canada. The purpose of these presentations is to provide the members of these communities with the knowledge necessary to both detect and prevent cartel activity. In addition, the

⁷ *Supra* note 1 at s. 66.1.

⁸ *Id.* at s. 66.2.

⁹ See Competition Bureau, “Whistleblowing Initiative” (28 May 2013), available online at www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03573.html.

¹⁰ See Competition Bureau, News Release, “UPAC and the Competition Bureau of Canada Lay 77 Charges Against 11 Individuals and 9 Companies” (21 June 2012), available online at www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03473.html.

Bureau publishes tools, such as pamphlets and multi-media documents, on its website. These tools are distributed to and used by both consumers and businesses in Canada.

3.4.1 Procurement Authorities

Providing outreach presentations to public procurement organizations at all levels of government has been and continues to be a priority for the Bureau. For example, in 2011, the Bureau provided 10 anti bid-rigging outreach training sessions to more than 1,000 employees of Public Works and Government Services Canada (“PWGSC”), the principal procurement agency of the Canadian Federal government. These presentations provided PWGSC’s procurement officials with the knowledge necessary to detect, deter and report bid-rigging to the Bureau. In particular, they included information on, among other things, the bid-rigging provisions in the Act, the common forms of bid-rigging, the characteristics that make an industry more susceptible to bid-rigging, the warning signs for possible bid-rigging, and the techniques that can be used to prevent bid-rigging.

Over the years, the Bureau and PWGSC have worked together to address the challenges posed by cartel activity, particularly bid-rigging. Pursuant to this existing relationship, PWGSC refers bid-rigging complaints and cases to the Bureau for investigation, and the Bureau provides annual training to PWGSC staff on bid-rigging prevention.

For example, in 2005, following an outreach session provided by the Bureau, PWGSC contacted the Bureau to raise concerns about certain bidding processes, and the Bureau began an investigation. As a result of this investigation, bid-rigging charges were laid against 14 individuals and seven companies in February 2009. The parties were accused of rigging 10 bids to obtain Government of Canada contracts for information technology services worth approximately \$67 million.¹¹ Two individuals have each pleaded guilty to one count of bid-rigging. The case against the other individuals and companies is currently before the courts and the PPSC is preparing for multiple trials.

As a result of the publicity generated by this case, the public procurement community became more aware of the importance of combating bid-rigging. The Bureau leveraged this increased awareness to expand its educational initiatives and, in particular, emphasize collaboration with PWGSC and other government departments.

As part of this collaboration, the Bureau recently entered into a Memorandum of Understanding (“MOU”) with PWGSC. The MOU is intended to strengthen the prevention, detection, reporting and investigation of possible cartel activity, including bid-rigging, for procurement processes and real property transactions that fall under the responsibility of PWGSC. This agreement, the first of its kind for the Bureau, highlights the commitment of the Canadian Government, through the Bureau and PWGSC, to take steps towards eliminating illegal cartel activity, maintaining competition in the marketplace and saving taxpayers’ money.

As part of the MOU, the Bureau and PWGSC agree to share information relating to procurement processes and real property transactions by way of collaboration in the areas of enforcement, education and awareness. By working together to share resources and exchange knowledge, both organizations will benefit from each other’s expertise and will enhance their ability to achieve their goals of preserving and promoting fair, efficient and competitive processes. The two organizations will also collaborate in training

¹¹ See Competition Bureau, News Release, “Competition Bureau Announces Charges Against Companies Accused of Rigging Bids for Government of Canada Contracts” (17 February 2009), available online at www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/02983.html.

and awareness programs to educate relevant stakeholders and PWGSC staff on how to detect and prevent cartel activity.

3.4.2 *Business and Legal Communities*

The Bureau also provides outreach sessions to the business and legal communities, including to industry and trade associations and to corporate and in-house counsel. For example, in 2011, the Bureau conducted 15 outreach sessions with over 300 member of the business community. Following these presentations, the Bureau uses a post-outreach presentation survey to evaluate the effectiveness of the presentations and participants' increased awareness.

As another example of outreach by the Bureau, in 2009, leading up to the 2010 Winter Olympics in Vancouver, the Bureau reached out to the construction industry by conducting a survey on possible bid-rigging on infrastructure projects. This survey increased awareness of the Bureau's mandate and programs, and assisted in the prevention and detection of bid-rigging in that industry.

3.4.3 *Proactive Monitoring and Competitive Intelligence*

Bureau officers regularly monitor the media, websites, antitrust publications and other public sources of information for potential cartel conduct. This includes monitoring the websites of foreign antitrust agencies for cases that could have a connection to Canada. The Bureau also benefits from information sharing within the agency.

These monitoring efforts have proven to be successful at detecting cartels in Canada. For example, as part of its active monitoring of retail gas prices and news media, the Bureau became aware of allegations of price-fixing among gas stations in several communities in Québec. In particular, it was reported that a number of gasoline pumps had been damaged purportedly because the retailer had not gone along with the price increases of others in the city.

Following an investigation by the Bureau, which included the use of "mystery shopping", wiretaps and searches, charges were laid in June 2008, July 2010 and September 2012 against a total of 39 individuals and 15 companies.¹² To date, 33 individuals and seven companies have pleaded or were found guilty, with fines totally over CAD\$3 million. Of these 33 individuals, six have been sentenced to terms of imprisonment totalling 54 months. Further criminal trials are scheduled for 2014 for other parties accused of price fixing.

This investigation of retail gas prices in Quebec has been one of the Bureau's most successful cases to date, and only came about as a result of proactive monitoring by Bureau employees.

3.4.4 *Increased Public Awareness of the Bureau's Mandate and Programs*

Maintaining and improving public awareness of the Bureau's role and mandate is a crucial feature of maintaining a credible enforcement program. In order to improve public awareness, the Bureau regularly publishes press releases following the laying of charges and/or guilty pleas, and publishes many speeches that are given by Bureau officials. These announcements are circulated by e-mail to subscribers and are also available on the Bureau's website. The Bureau also publishes specific price-fixing and bid-rigging awareness materials on its website.

¹² See Competition Bureau, "List of Charges and Sentences in the Quebec Gasoline Price-fixing Cartel" (updated 28 September 2012), available online at www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/03079.html.

The Bureau's cartel awareness efforts, especially the media attention that high profile cases draw, increase awareness of competition law throughout Canada. For example, on June 6, 2013, the Bureau announced that criminal charges had been laid against three companies and three individuals accused of conspiracy under the Act for their alleged role in fixing the price of chocolate confectionery products in Canada. Following the announcement, a total of 33 major national and regional daily newspapers across Canada printed articles the next day reporting the facts of the Bureau's announcement. These charges also generated extensive radio and television coverage in national, regional and local news broadcasts across Canada. In the week following the announcement, there were 2,704 visits to the announcement on the Bureau's website and 345 Twitter hits related to the matter.

This increased awareness helps to ensure that the public is knowledgeable about the role and mandate of the Bureau, and familiar with the tools that can be used to report suspected cartel activity and other violations of the Act. Increased public awareness also aids in deterring cartel behaviour.

4. Conclusion

While the Immunity and Leniency Programs continue to be the Bureau's most important tools for detecting, investigating and prosecuting cartels, the Bureau also uses a number of other reactive and proactive methods to increase its detection of cartels. These methods effectively complement the Immunity and Leniency Programs, creating a more comprehensive and successful regime for detecting and deterring cartels. This ultimately results in greater competition in Canada, including lower prices and increased product choice for consumers.

CHILE

1. Cartel detection policy and tools

Since 2009, when a legal provision on leniency was introduced in the Chilean competition law, the Fiscalía Nacional Económica (hereinafter, “FNE”, the Chilean Competition Agency) has made efforts to encourage leniency applications as a method for detecting cartels. To date, however, proactive methods for detecting collusion remain as an important source of cartel investigations and cases in Chile.

In fact, even though some of the cartel cases currently pending before the Competition Tribunal (“TDLC”) were initiated following complaints by private parties, or referrals from other governmental agencies, those complaints or referrals in general did not provide relevant cartel information to the FNE but demanded a major effort from the FNE in terms of investigative activities.

The FNE, and in particular, its Anti-Cartel Unit, has focused on proactive methods of uncovering cartel conduct. Special resources have been invested by the FNE for this purpose. Most importantly, the FNE has invested in highly qualified staff, comprised half by lawyers and the other half by economists.

In terms of formulating an optimal cartel detection policy, the FNE has made the decision to perform market screenings in the context of ongoing investigations within the Anti-Cartel Unit, as opposed to creating a separate intelligence unit. The idea behind this decision is to undertake outcome-oriented market analyses, i.e. studies that ultimately could lead to a case and eventually to sanctions imposed by the TDLC.

The application of this policy has resulted in investigations that have uncovered domestic cartels related to consumer goods. When an agency is focused primarily or only on receiving leniency applications, there is a possibility that its portfolio of investigations could be centered more heavily on international cartels.

A notable example of the FNE’s proactive efforts is the poultry cartel matter currently pending before the TDLC. In that case, the FNE’s Investigations Division assessed certain information that, together with public input price data, allowed the FNE to perform industry wide screenings, the results of which were used as support for requesting judicial warrants for performing raids.

2. FNE’s experience with screenings

Increasingly, the FNE has invested in reinforcing its Anti-Cartel Unit in order to use different economic tools in the detection analysis and to be able to perform market screening. Regarding the application screens, the first step of the analysis is to detect markets that may be prone to cartel conduct. Based on theoretical and empirical literature on collusion (e.g. Ivaldi, *et al*, 2003, Motta 2004), the FNE has focused its attention on markets with a small number of players, homogeneous products, barriers to entry, transparency, and frequent interaction among competitors. The FNE also applies other criteria when deciding if an industry will undergo an in-depth analysis, such as markets currently being investigated in other jurisdictions or markets involving highly sensitive consumer products.

Once the analysis of structural market characteristics is performed, by economists within the Investigation Division, they become ready to perform a behavioral screening. These screenings aim at

analyzing the evolution of the pattern of economic data—prices, quantities, market shares, demand shifters, cost shifters—to identify “suspicious” behavior. In some specific cases, the analysis is backed by econometric studies. Some details on FNE’s behavioral screenings exercises are provided in what follows.

Analysis of potential market division and/or stability in market shares: The likelihood of market division (allocation of tender entities, allocation of territories, allocation of products, etc.) is evaluated on the basis of the value of contracts awarded to each bidder and the evolution of those values over time relative to the same evolution regarding other competitors. In addition, particularly for cases in which there is not a complete market division (100% vs. 0%), evolution of market shares over time need to be examined as well, since stability on market shares is an indicator of weak competition.

Evolution over time of average prices offered (and average margins, if such information is available): The main purpose of this screening is to identify a pattern change in prices to identify any structural breaks (e.g., change in average prices levels or in the variance of individual prices offered in each tender). These pattern changes allow the identification of potential competitive and collusive periods. This kind of screening can be complemented with an econometric analysis based on a test for structural breaks (e.g. Chow test).

Average prices vs. dispersion indicator (standard deviation or variance coefficient): Another kind of behavioral screening the FNE has performed involves the analysis of average prices of contract awards and the variance over time. This orientation assumes that in collusive markets average prices of awards should be higher and show a lower dispersion (Rosa Abrantes, *et al* 2005).

Ratio of cost changes vs. price changes: When information on companies’ costs is available or public information on major productive inputs is reliable, behavioral screenings can be performed which are aimed at identifying whether variations in costs have translated into variations in prices submitted (assuming that in a competitive market the ratio should be close to 1:1).

A complementary econometric model could quantify the degree of transfer and determine how variations in costs are reflected in prices (pass-through in short run and long run). It is important to consider that in this kind of econometric analysis it is necessary to distinguish between the periods when the input cost increases and those in which input cost decreases, because prices tend to adapt differently in a collusive scenario. Asymmetric pricing is associated with negative cost shocks being passed along to consumers more slowly than positive ones.

Another structural econometric screening that the Anti-Cartel Unit has applied includes estimating the demand curve to see whether real prices or markup are close to competition (Bresnahan methodology for homogeneous products; in case of differentiated product we consider estimating a competitive benchmark and comparing the behavior of suspected colluders using estimation of discrete choice model demand or AIDS methodologies).

As to the outcomes of the use of these techniques so far, these screening exercises have been used in the analysis of several unrelated industries. In two industries, in which suspicious patterns were identified, a more accurate analysis was performed. Eventually, these findings led to the initiation of cartel investigations.

It is important to note that the application of these screening techniques becomes public only when the results are presented before the TDLC if the FNE brings a case. Before that, the exercise is done internally by the Anti-Cartel Unit to decide whether to proceed with a full investigation.

3. Increasing awareness of public procurement officials and screens in public procurement

The FNE has undertaken significant competition advocacy efforts towards public procurement officials since 2008. In a joint initiative with the OECD and the Competition Bureau of Canada (2008-2010) the FNE led an interagency taskforce involving public entities that deal with public procurement processes in a campaign for increasing awareness and training public procurement officials in prevention and detection techniques.

As part of these outreach initiatives, advocacy materials have been produced. An updated version of the guidelines and checklists for preventing and detecting bid rigging in public procurement, “*Compras Públicas y Libre Competencia*,” was issued by the FNE in 2011.¹ A major innovation of this version was the introduction of a very detailed, step-by-step recommendation chart on what should be done by public procurement officials when they encounter suspicious patterns, both during the prevention phase and the detection stage.

In all of these initiatives the OECD Guideline for Fighting Bid Rigging in Public Procurement and other efforts the OECD has made in the area have been particularly helpful.

Notwithstanding the complaints or referrals from other public entities, in recent years the FNE has focused its efforts more on direct detection, using resources to access the relevant data for performing screening exercises. In April 2011, the FNE and the government procurement body (Dirección de Compras y Contratación Pública “Chilecompra”) entered into a cooperation agreement that allows the FNE to monitor the tenders through the database available in Chilecompra’s technology sources. The data includes relevant information of procurement tenders managed by public entities since 2007. In addition, other information is available, including *ex ante* estimated prices or expenses, evaluation criteria and their grading, technical and economic annexes, etc.

4. Final remarks

On the basis of the information available to the FNE, and following the internal prioritization criteria, the FNE has focused its screening efforts on sensitive industries. Therefore, consumer sensitive markets and industries that are prone to collusive behavior have been prioritized.

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¹ The document is available in Spanish, here: <http://www.fne.gob.cl/promocion-de-la-libre-competencia/herramientas-de-promocion/>; click on “Compras Públicas”.

ESTONIA

1. Ex-officio investigations

Estonian Competition Authority uses both reactive and proactive cartel detection measures in its enforcement practice. Neither of these measures is dominant over the other or is regarded more important. Rather a balance is being strived toward to use both measures as complementing one another. The effectiveness (costs and benefits) of different measures has not been specifically evaluated, so, it will be hard to comment on that. Still, it is more cost-effective to act on claims and complaints as well as tips and solid intelligence than to actively search for cartel behaviour on one's own initiative and then determine whether the surfaced behaviour is in fact anti-competitive or just appears to be such.

Usually the suspicious cartel behaviour is brought to our authority's attention by a third party, mostly vigilant competitors or potential competitors whose market entry has somehow been hampered; clients or business partners; officials of other state authorities; former managers, directors or employees etc. These persons usually hint on suspicious behaviour, i.e. act as whistle-blowers, rather than submit an official complaint. Complaints are less frequent. We also occasionally receive leniency notices but the overall number of leniency notices is considerably lower than other forms of alerting us to cartel behaviour. Screening is also rarely used as we don't have enough resources for it. Although we have used screening for a couple of times there is no consistent and systematic pattern which could be brought out here.

Ex-officio investigations have no priority over other measures to discover grounds for investigation. It is important to combat competition law related crimes as such but there is no emphasize on a specific measure. In the view of effective competition law enforcement different measures (including ex-officio enforcement) are equivalent.

Ex-officio cartel investigations are usually triggered by information from media (e.g. newspaper articles) or other public source but there is no specific framework or procedure for initiating *ex-officio* cartel investigations. The problem with information from media is that it is sometimes distorted or is even not based on any proof but rather on hypothesis or even wishful thinking. Thus, it is important to be careful while initiating any proceedings based on a newspaper article. It is also worth mentioning that journalists occasionally write their articles on a hope that we will initiate a proceeding and thereby "provide them a story". This could lead to false accusations, so, we verify the claims from different sources to ensure that there in fact could be grounds for the investigation. We also don't hurry on commenting on the journalists' discoveries of alleged cartel activities.

Still, over the years Estonian Competition Authority has repeatedly been investigating suspicious behaviour in ex officio capacity and has had cases with different outcomes. As mentioned above the small size of the authority does not permit to invest resources into market surveillance or sophisticated economic analysis. Therefore, most or all of the *ex-officio* cases undertaken in the recent years have been based on monitoring and following the media. Below are given a few examples.

- An *ex officio* case handled by the Authority and provided as an example took place in the market of security services providers. In 2010 a newspaper article was published in the daily newspaper "Postimees" claiming that several security services providers were sharing the clients, based on a clause in co-operation agreement. Prior to publishing the story our authority was asked by the

publisher to comment on the possible legal aspects of this arrangement. As the alleged agreement appeared to be and was perceived as unlawful, the authority prepared for inspection in the biggest of the undertakings allegedly involved in the behaviour. The inspection was carried out on the same day as the story was published and yielded several written co-operation agreements as well as draft agreements and electronic correspondence between several security services providers. These materials indicated market sharing as part of broader co-operation on joint provision of security services. Soon, type B leniency application was submitted to the authority by an undertaking subjected to inspection. As a result of the investigation of this case fines were imposed on the second and the third biggest security providers in Estonia.

- Another example of an *ex officio* case took place in 2010 as well as news outlets published a comment of a representative of a bread-baking undertaking who claimed that upcoming Bakers Association meeting would involve discussing of bread price increases. The Association's meeting which was held after this announcement ended in a press statement claiming "unavoidable" increase of the price of bread due to increasing prices of grain cereals. The authority reacted by launching several dawn raids and seized various items, including the audio recording of the Association's meeting, during which the price increase discussions were in fact held. In addition, e-mail correspondence highly relevant to the subject was obtained. Finally, the Authority held extensive interviews (resulting in 10-pages records) with a participant in the meeting who agreed to become a source of trustworthy information for the case. After reviewing the material and consulting with Prosecutor's Office the case was closed without penalties imposed. The decision to close the case was not substantiated but apparently the discussions which were held with regard to the price increase did not meet the criteria of an agreement or concerted practice.

Whichever measures our authority uses we always have to keep in mind that as criminal cartel investigations will be directed by the Prosecutor's Office we constantly need to update the prosecutors and seek for guidance from them. Because of criminal proceedings the quality of information on alleged cartel activity is crucial. The prosecutors are not so much concerned about the existence of a cartel as such (which is the main driving factor of the activities of the competition authority) but whether it can be successfully proven at court. If the case involves too much uncertainty and it is apparent that very little proof can be attained during the pre-trial procedure the prosecutors will be reluctant to spend valuable state resources on the criminal proceeding which has little perspective to ever reach to court.

2. Training of officials engaged in public procurements on competition law issues

The Authority has indeed trained the procurement officials (especially officials of the local governments) mostly on general issues of anti-competitive cooperation but not specifically to recognize common patterns indicating bid-rigging. Competition Authority has not elaborated any written guidance for the procurement officials but we have consulted them if any of them has approached us with possible competition problems regarding bids. Although officials responsible for the public procurement have basic knowledge about possible risk of collusion by bidders they are not very active reporting of suspicious behavior. Competition Authority considers it very important to increase the effective cooperation with public procurement bodies.

EUROPEAN UNION

1. Introduction

The fight against cartels is one of the main pillars of the Commission's work in the area of competition. Companies in cartels that control prices or divide up markets are protected from competitive pressure to launch new products, improve quality and keep prices down. Cartels lead to artificial short and medium-term profits for the companies involved and in longer term can affect innovation. Inevitably, this is to the detriment of consumers.

The Commission has a number of tools at its disposal to uncover cartels. Essentially, they can be grouped under two separate headings, *ex officio* investigations and leniency based investigations.

2. EU leniency programme

Hard core cartels hiding under a cloak of secrecy are the most serious violations of competition law. Cartel members increasingly use sophisticated or undetectable means of communication in order to conceal their illegal actions. Therefore, the detection and prosecution of hard core cartels poses a major challenge for public enforcement. In a bid to increase the effectiveness of the anti-cartel enforcement, the Commission has introduced, as early as 1996, a leniency policy which proved to be a mainstay of the Commission's action against cartels.

The European Commission leniency policy is embodied in a leniency notice, a Commission policy instrument, which gives rise to rights and obligations for the companies wishing to cooperate with the Commission. The current 2006 Leniency Notice¹ was preceded by the 2002 Leniency Notice² and the initial 1996 Leniency Notice³. The 2006 Leniency Notice, together with the decisions of the Commission as well as jurisprudence of the EU Courts, provide for a transparent, predictable framework for cooperation between the Commission and cartel offenders willing to acknowledge and to put to an end their participation in a collusive conduct.

The Commission leniency programme offers the cooperating companies essentially two types of leniency rewards. First, full immunity from fines is available to those companies that enable the Commission to carry out targeted inspections or to find a cartel. Secondly, fines reductions of up to 50% may be granted to any subsequent applicants (reduction of fines applicants), which voluntarily present to the Commission evidence representing significant added value.

The Commission's Leniency policy has proved to be an extremely successful tool for uncovering and dismantling cartels. Until the end of 2012, 166 applications for immunity under the 2006 leniency notice were received.

There can be a variety of situations giving rise to a leniency application such as the following: (i) parallel/previous filings in other jurisdictions (worldwide cartels), (ii) "cleaning exercises" (i.e., when

¹ OJ C 298, 8.12.2006, p. 17-22.

² OJ C 45, 19.2.2002, p. 3-5.

³ OJ C 207, 18.7.1996, p. 4.

being investigated for one cartel a company "detects" others), (iii) when cartel members fall out, (iv) internal audits or compliance initiatives, including due diligence in the context of an M&A activity, and (v) enforcement activities triggering further applications as a result of an increased awareness of risks associated with cartel behaviour ("ripple effect").

The Commission's leniency policy, as an investigation tool, was complemented in 2008 by a new policy – the settlement procedure for cartels⁴. In contrast to the leniency policy, the settlement procedure aims at simplifying and expediting the procedure leading to the adoption of a formal decision, thereby allowing for procedural savings and the internal redeployment of enforcement resources. Under this procedure, concrete contributions to procedural efficiency are rewarded and all parties who agree to a settlement receive a reduction of 10% of their respective fines. Hence, although the leniency programme and settlements each serve a different purpose, they both ultimately lead to enhanced competition law enforcement.

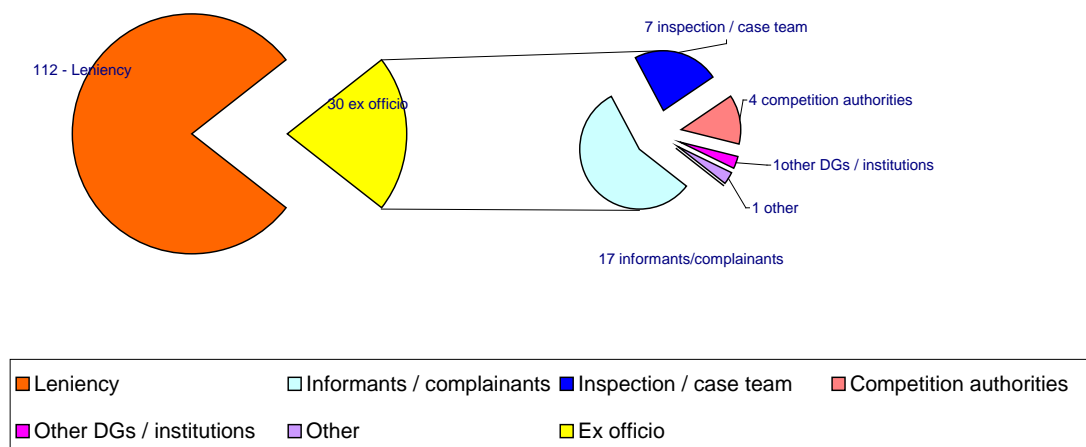
3. *Ex officio* investigations

Although cases based on leniency applications represent the majority of cartel cases today, the prosecution of cartels on an own initiative or *ex officio* basis constitute an important tool for the Commission to uncover cartels.

The *ex officio* detection of cartels is important for two main reasons. First, it allows detection of cartels which may not be denounced by any participant (stable cartels) or allows detection at an earlier date. Second, the risk of detection *ex officio* can be an important driver of leniency applications. Therefore, *ex officio* detection of cartels and leniency programmes are complementary tools. In most cases *ex officio* investigations are later complemented by subsequent applications for reductions of fines under the Leniency Notice.

Since the year 2005 till end of October 2010, 112 cartel investigations were started, out of which 30 have been initiated on an *ex officio* basis, which confirms the ability of the Commission to successfully unveil cartels on its own initiative. This is illustrated by the following chart:

Origin of cases



⁴

OJ L 171, 1.7.2008, p. 3–5 and OJ C 167, 2.7.2008, p. 1–6.

The term *ex officio* investigations refers to a broad group of own initiative investigations. For the EU, it includes the following:

- the public /consumers, complainants, informants / whistle-blowers;
- information from other Commission Services;
- other institutions;
- market intelligence;
- Information from the European Competition Network and non-EU competition agencies.

3.1 *The public/consumers, complainants, informants/whistle-blowers*

The Commission encourages citizens and undertakings to address themselves to the public enforcers to inform them about suspected infringements of the competition rules. At the level of the Commission, there are two ways to do this. One is by lodging a formal complaint pursuant to Article 7(2) of Regulation 1/2003⁵.

The other way is the provision of market information that does not have to comply with the requirements for complaints pursuant to Article 7(2) of Regulation 1/2003. For this purpose, the Commission has created a special website to collect information from citizens and undertakings and their associations who wish to inform the Commission about suspected infringements of Articles 101 and 102 TFEU. Such information can be the starting point for an investigation by the Commission. Informants and whistle-blowers, i.e. typically current or former employees, can equally use the possibilities created by Regulation 1/2003. As for them it may be critical to remain anonymous, the Commission takes due care that their identity is not revealed before, during and after proceedings.

A good example of an investigation which was initiated based on information received from an informant concerns the Car Glass case⁶. In that case the Commission received information from a lawyer, acting on behalf of an unidentified client, that car glass manufacturers had put in place certain agreements and concerted practices with a view to exchanging price and other sensitive information and allocating car glass supplies between each other for certain vehicle manufacturers and car models.

A complaint under Article 7(2) of Regulation 1/2003 has to comply with a so-called "Form C" referred to in Article 5(1) of Regulation 773/2004 and annexed to that Regulation⁷.

Not only individuals and companies, but also consumer associations can lodge formal complaints with the Commission. Form C requires complainants to submit comprehensive information in relation to their complaint. They should also provide copies of relevant supporting documentation reasonably available to them and, to the extent possible, provide indications as to where relevant information and documents that are unavailable to them could be obtained by the Commission.

⁵ Council Regulation (EC) No 1/2003 of 16 December 2002 on the implementation of the rules on competition laid down in Articles 101 and 102 of the Treaty (OJ L1, 4.1.2003). See also the Commission notice on best practices for the conduct of proceedings concerning Articles 101 and 102 TFEU, para 10-11, OJ C 308/6, of 20.10.2011.

⁶ Commission Decision of 12 November 2008, OJ C 173/13 of 25.7.2009.

⁷ Commission Notice on the handling of complaints by the Commission under Articles 81 and 82 of the EC Treaty (2004/C 101/05).

Correspondence to the Commission that does not comply with the requirements of Article 5 of Regulation 773/2004 and therefore does not constitute a complaint within the meaning of Article 7(2) of Regulation 1/2003 will be considered by the Commission as general market information that, where it is useful, may lead to an own initiative investigation.

Complainants have to demonstrate their legitimate interest. Where a natural or legal person lodging a complaint is unable to demonstrate a legitimate interest, the Commission is entitled, without prejudice to its right to initiate proceedings of its own initiative, not to pursue the complaint.

3.2 *Information from other Commission Services*

Information from other Commission Services may be very useful in uncovering cartels. Such information in combination with information in the possession already of DG COMP or subsequently to be collected can form the basis for successfully uncovering cartels which are otherwise more difficult to detect.

The Commission's Decision in the Italian Raw Tobacco case is a good example hereof⁸. In this case, the investigation concerned the agricultural sector, a sector in which the Commission is highly involved, as part of its Common Agricultural Policy. In this role it obtains a wide stream of information on the functioning of the individual agricultural markets. The information received by DG COMP in this case suggested that since 1999 the national Italian association of processors of raw tobacco had concluded agreements concerning price ranges for distinct qualities for one or more varieties of raw tobacco. Further investigations confirmed these suspicions and allowed the Commission to put an end to this cartel.

Another area for detecting possible leads of collusion is anti-dumping. Under EU law companies can file an anti-dumping complaint to the Directorate-General for Trade of the Commission if i) a product is being exported to the EU at dumped prices and ii) they are injured by these imports. Experience has shown that in some cases, companies might consider that their cartel arrangements are endangered by cheap imports into the EU. In order to stop these threats, companies may consider filing antidumping complaints to keep the status quo and avoid competition entering the cartelised market.

A good example is the Chloroprene Rubber case⁹, a cartel case first investigated by the US Department of Justice, followed by the Canadian Competition Bureau. In the subsequent Commission proceedings, one of the parties submitted that the European producers had threatened the Japanese producers with possible anti-dumping proceedings during one of the cartel meetings, as the European producers wanted the Japanese companies to exit the European market.

3.3 *Market intelligence*

DG COMP is organised on a sectoral basis. A number of its Directorates focus on particular sectors of industry. The case handlers within these Directorates include specialists possessing sector specific sectoral knowledge, because of their education and case experience, in merger, antitrust or state aid cases. These specialists closely follow trends and developments via the media, internet and the specialist trade press and therefore have a high level knowledge of specific sectors of industry sector. Such knowledge may be of particular use in cases where a suspicion of cartel behaviour existed already, or may even by itself give ground to closer investigate a particular market sector for cartel behaviour.

⁸ Commission Decision of 20 October 2005, OJ L 353/45 of 13.12.2006.

⁹ Commission Decision of 5 December 2007, OJ C 251 of 3.10.2008.

A good example hereof is the Commission's sector inquiry into the functioning of the European gas and electricity markets launched in 2005 which provided the Commission with detailed in depth knowledge of the European energy markets. Following this inquiry, the Commission uncovered on an ex officio basis a cartel between E.ON and GDF Suez for market sharing in the French and German gas markets¹⁰. The case was primarily based on an agreement made in 1975 between the companies then known as Ruhrgas AG and Gaz de France. The companies jointly built the MEGAL pipeline across Germany to import Russian gas into Germany and France. They also exchanged two secret letters agreeing not to sell their shares of the gas into each other's home market. Despite the legally-binding decision by Europe's governments to open up the gas market to competition as from 2000, these companies continued to apply their market-sharing agreement until September 2005.

3.4 *ECN and other non-EU jurisdictions*

National Competition Authorities within the EU naturally also gather intelligence concerning possible cartels. The simultaneous compilation of intelligence by the Commission and several national authorities led, for example, to the investigation in the Flat Glass case¹¹. The Commission initiated the investigation leading to this Decision as a result of information exchanged under Article 12 of Regulation (EC) No 1/2003 as well as informal exchange of information from the German, French, Swedish and British competition authorities in late 2004 and early 2005. The information received consisted mainly of letters and/or informal complaints from some customers of the largest Community flat glass suppliers, namely Glaverbel, Saint-Gobain, Pilkington and Guardian, about systematic parallel price increases for similar product ranges and the parallel application of an energy surcharge calculated in similar fashion by those suppliers.

Important leads for uncovering cartels may also stem from non-EU agencies. The Commission cooperates on a wide scale with a large variety of competition agencies. This cooperation can be based on an agreement, Memorandum of Understanding or simply be *ad hoc*.

The Commission has signed bilateral agreements on cooperation on competition matters with USA, Canada, Japan and Korea. These bilateral agreements provide, amongst others, for the exchange of information concerning anticompetitive activities that may be relevant for the other party's competition authority. In particular, they can draw the Commission's attention to certain sectors, or products, which may be prone to cartelisation in Europe as well. The exchange of information under these agreements is however limited to non-confidential information. This is different under the bilateral cooperation agreement which the EU has negotiated with Switzerland. This agreement allows for the exchange of confidential information under certain strict conditions.

4. **Use of economic evidence**

Cartel members are often using sophisticated means to hide their behaviour, as European business circles have become increasingly aware of the far-reaching scope of EC competition law and the fact that the Commission decisional practice has become stricter as regards cartels¹².

¹⁰ Commission Decision of 8 July 2009, OJ C 248/5 of 16.10.2009.

¹¹ Commission Decision of 28 November 2007, OJ C 127/9 of 24.5.2008.

¹² E.g. in the *Gas Insulated Switchgear* case of 24 January 2007 (OJ C5/7 of 10 January 2008) cartel Members took sophisticated measures to keep their communications secret. Code names were used for both companies and individuals. In the last years of the cartel they relied on anonymous e-mail addresses for communication and used encryption for sending messages.

One of the reactions to this development has been the increased use by the Commission and other authorities alike of indirect evidence, - in addition to direct evidence¹³. This indirect evidence also includes economic evidence. However, the past experience of the Commission has shown that one should be cautious adopting a cartel decision imposing fines on undertakings relying exclusively or to a large extent on economic evidence¹⁴.

For instance, in its ruling in the Woodpulp case the European Court considered the Commission's efforts to rely on economic data as insufficient. As the Court stated in this case, the parties can often provide plausible alternative explanations for market movements. This is an issue which goes beyond the remits of this case and concerns the use of economic evidence in general.

This being said, the Commission considers that economic evidence can play an important role in its investigations. This concerns, for instance, the early stage of proceedings, when deciding whether or not to initiate an in-depth investigation, when economic information can be useful, especially in combination with other leads. However, the role of economic evidence, as essential building block of the evidence for the existence of a cartel infringement, is limited. The Commission considers that economic evidence should be seen rather in conjunction with all the other direct and indirect evidence available in the case.

5. Conclusion

In the recent past the majority of the Commission's cartel cases have originated from leniency. At the same time, the Commission has continued pursuing cases also on *ex officio* basis. We believe that this is desirable to maintain the deterrent effect of our enforcement system. Economic evidence can play a role in cartel proceedings, though one should be aware of its limitations when used as conclusive evidence for establishing the cartel infringement.

¹³ Cfl *Limburgse Vinyl Maatschappij NV and others v Commission*, para 529.

¹⁴ The only cartel case which relied exclusively on indirect evidence in form of (parallel pricing) was annulled by the court, see Woodpulp Judgment of the Court of 31 March 1993, *A. Ahlström Osakeyhtiö and others v Commission*, joined cases C-89/85, C-104/85, C-114/85, C-116/85, C-117/85 and C-125/85 to -129/85.

HUNGARY

In the cartel investigative work of the Hungarian Competition Authority (hereinafter: Gazdasági Versenyhivatal – GVH) the gathering of information on usually concealed cartels is of utmost importance. In order to strengthen this work, the GVH set up a Cartel Detection Section to deal solely with the investigation and analysis of relevant economic data and market information related to cartels – in other words to carry out business intelligence. The tools used are linked to legal sources and serve one goal: the acquirement of more information on the market. Cartels may only be detected, and competition supervision proceedings may only be initiated, if the means of intelligence at the GVH's disposal are used to obtain sufficient information.

In the experience of the GVH it is only worth devoting resources to the investigation of a cartel if there is already some suspicion as to its existence. This is due to the fact that such investigations are very demanding from a resource point of view. Consequently, it is partly the task of the Cartel Detection Section to identify suspicious behaviours, industries and conducts of undertakings which might deserve further analysis.

Means of detection can be:

1. External information sources:

1.1 Anonymous notifications

During the detection of a cartel there are usually persons who (for revenge, jealousy, believed or real offences) are willing to provide information on a suspected cartel or information which identifies the existence of a cartel either after being contacted by us or by contacting us, provided that their identities remain a secret.

1.2 Informal/Formal Complaints

Persons, similar to the above-mentioned ones and/or persons whose interests are damaged by the activity of a cartel often submit informal/formal complaints to the GVH in accordance with the provisions set out in the Act 'LVII of 1996 on the Prohibition of Unfair and Restrictive Market Practices' (Hungarian Competition Act hereinafter: HCA). Such persons may request that their identities are kept secret.

1.3 Application of leniency policy

The leniency policy is applied under the conditions and provisions set out in the HCA. There is not much of an incentive in Hungary for applications to be made under the terms of the leniency policy. Domestic undertakings usually only apply for leniency after the GVH has already initiated a proceeding against them.

1.4 Cooperation with informants and cartel informant reward

Persons providing indispensable information on hard-core cartels (hereinafter: informants) may be entitled to an award if the conditions set out in the HCA are met.

Due to the excessively damaging effects and hard detectability of hard-core cartels, the GVH holds that it might be reasonable to reward persons who provide indispensable information¹ for the detection and investigation of cartels with a prize. The GVH had also previously cooperated with persons revealing cartels (e.g. employees, business partners), but the experience was that the cooperating parties also undertook financial risks because of the possible retaliation of the other parties involved in the cartel. This risk needed to be offset in order to motivate individuals to come forward to assist in the enforcement of the law.

The other goal of the reward was to make undertakings feel more threatened by the GVH in the hope that it would encourage violators to apply for leniency, or that it would at least make the organisation of cartels more complicated.

Conditions of the payment of the reward:

- it may only be paid in the case of hard-core cartels;
- there can be two types of information: either written evidence that proves to be indispensable for the detection of the cartel and/or such oral information that leads to the GVH obtaining a search warrant during its cartel proceeding.

Obtaining a search warrant so that unannounced inspections (dawn raids) can be made on the premises of the undertakings suspected of being involved in a cartel is of vital importance in the fight against cartels. Such inspections, which must be carried out in accordance with the relevant provisions of the HCA, enable the GVH to search and confiscate any papers and electronic documents found on the premises. Under certain conditions dawn raids may also be carried out on private premises or on premises for private use.

The GVH cooperates with any natural person who has provided information. Such persons may have had direct contact with the cartel (e.g. they may have been involved in the cartel activity themselves) or may have information about this restrictive practice without having any personal direct contact with the cartel.

The Hungarian Criminal Code in force requires that those involved in cartel behaviour in public procurement or concession procedures (whether as a direct offender, accomplice or instigator) are punished. However, if a person who is participating in cartel activity in a public procurement or concession procedure, in the framework of the leniency policy, notifies the GVH about the cartel activity and provides indispensable evidence which enables the initiation of a proceeding, then – if other conditions are also met – it is possible, that s/he is exempted from the criminal sanction. Regarding this latter point, it is the authorities endowed with the jurisdiction to enforce the criminal procedure (including the courts) and not the GVH that have the jurisdiction to decide. This possibility of exemption provides an incentive for applicants to come forward under the leniency policy.

The reward is based on the fine imposed by the proceeding competition council in the case, i.e. the reward is based on the cumulative fines imposed on the different parties.

As regards the informant reward scheme that was introduced in 2010, experience shows that while the leniency programme does not have a substantial incentive effect, the GVH is receiving more data² from informants every year. On that ground the GVH has been able to initiate significant – on-going – cartel proceedings.

¹ No award may be paid in case of general information implying a violation of the law.

² Exact numbers may not be disclosed

The GVH exploits the fact that it is actually the undertakings' own employees who pose the biggest threat to the undertakings when it comes to possible informants. This is because employees are likely to have access to the undertakings' sensitive data and may use this data against them if they become aggrieved.

2. Internal information sources

2.1 *Economic analyses (cartel screening)*

The use of economic tools and empirical data to assist in the detection of cartel activity has come up in the agenda of the GVH three times in the last six years. The first attempt in 2007 was a follow-up of a similar DG COMP attempt to set up a framework for initiating ex-officio cartel investigations.³ The methodology was based on a two-step analysis (first an industry analysis using certain priorities to describe the level of competition, followed by a second step using critical events to detect suspicious activities). Considering that this type of analysis requires a serious amount of man-power and other resources, it was decided that it was best not to try it in practice.⁴

Our second attempt at approaching the issue was in 2010. Inspired by the presentation⁵ (and previous works) of Joe Harrington, an ad hoc working team in the GVH tried to evaluate the issue again focusing on the use of econometric tools. While the team of the Chief Economist was highly capable of applying these highly sophisticated methods, there was a lack of sufficient data. It turned out that not only did the GVH not have access to the necessary data, but also other government institutions. The collection of the necessary data using monitoring tools would have taken too much time and effort, so the issue of cartel detection by economic methods once again went silent within the office.

The Competition Policy Section of the GVH picked up the issue again this year and set up a working group, the main task of which was to catch up with several other authorities in Europe where economic analysis in cartel detection has been successfully used. The team, after collecting the experiences of other authorities, decided to focus on public procurement auctions using the most successful cartel screening methods. Almost all of these methods were based on data from public or private procurement tenders. Public procurement actions are frequent, data is publicly available, bidding rings are known to be common; cartels are more stable and less easy to detect. Although a new IT facility has been set up at the Public Procurement Authority, it has become apparent that setting up a database which is adequate for testing is not a lot easier than before due to the current legal environment. At this stage, the GVH is trying to work together with the Public Procurement Authority to solve the problem of acquiring and accessing data in order to set up an adequate database.

2.2 *Internet/press*

The experts of the Cartel Detection Section are currently working on acquiring data-mining methods which would be able to filter online data in accordance with a pre-set and constantly maintained taxonomy and set of rules and which would be able to highlight the hits for the evaluator/analyst.

The GVH is constantly developing its IT forensic tools with the help of experts as they can assist in the detection of other cartels in the course of on-going or in the initiation of cartel investigations. Pursuant

³ See for example A FRAMEWORK FOR INITIATING EX-OFFICIO CARTEL INVESTIGATIONS, Working Paper, DG COMP CET (2007)

⁴ The GVH has been informed about the attempts of some of the competition authorities within the EU, which, however, have all only had a limited outcome.

⁵ Joe Harrington, "Screening for Cartels: The Next Step in Enforcement", CRA Annual Conference on Economic Developments in Competition Policy, Dec), 2009, Brussels

to the HCA, during dawn raids investigators of the GVH may make copies of or confiscate evidence that is not connected to the subject of the investigation, not included in the warrant, but which violates Articles 11 or 21 of the HCA⁶ or Articles 101 or 102 TFEU⁷. If such evidence is found, a court warrant is to be obtained afterwards.

The GVH cooperates with the Public Procurement Authority of Hungary. This cooperation covers which data and in which manner the Public Procurement Authority may oblige, under its jurisdiction, the participants involved in public procurement procedures to constantly share. This data may be suitable for the development of a system which signals public procurement cartels.

2.3 *Information exchange between authorities*

Since 2005 the Criminal Code has required that cartel behaviour in public procurement or concession procedures (whether as an offender, accomplice or instigator) is punished, therefore in such cases investigators of the GVH are constantly cooperating with members of the police. The cooperation is generally based on the exchange of information of general interest. The competition supervision and the criminal proceedings are conducted separately. It is worth to mention the reporting obligation of the GVH in the case of any crime, became aware of it through leniency application submitted to him. According to Article 171 (2) of Act XIX of 1998 on the Criminal Procedure Code a member of the authority and the official person, in addition, if a specific law requires, the public authority is obliged to report a crime if it became aware of it under its authority. The accusation shall be accompanied by the means of proof, if this is not possible, the preservation must be provided.

2.4 *Proceedings of other EU Member States*

Investigators of the GVH are constantly monitoring and following information regarding the proceedings initiated by the European Commission and other EU Member States. The primary source for this is the Mlex database (info.mlex.com). If the GVH is interested in a particular case, the investigators of the case of the Member State or the Commission are contacted within the framework of the European Competition Network.

3. *Detecting public procurement cartels*

Collusion between bidders on tenders and public procurement procedures is a common type of cartel.

In order to detect and acquire information on these practices, besides the tools mentioned above, the GVH's activities include the following:

In December 2012, the GVH established a cooperative relationship with the Hungarian Procurement Authority, to enhance the efficiency of the fight against bid-rigging type cartels. The agreement covers expert meetings, transparency issues of procurement data and other tools on raising awareness of suspicious collusive schemes.

Since 2012, the GVH operates a webpage dedicated, among others, to contracting entities (www.megfeleles.hu – a webpage on compliance) where information and examples are given about the nature and recognisability of public procurement cartels.

⁶ These are provisions relating to restrictive agreements (including cartels) and unilateral conducts.

⁷ Treaty on the Functioning of the European Union

In addition to the mentioned webpage the GVH also issued a publication with similar contents but especially for contracting entities, under the title “Suspected cartel in public procurement?”.

The relevant provisions of the Public Procurement Act aim to facilitate the acquirement of information on public procurement cartels. These provisions stipulate that if during the procurement process and based on solid grounds, the contracting entity identifies a clear and manifest infringement or reasonably assumes an infringement of the cartel prohibition rules set forth in the HCA or Article 101 TFEU, it shall (in accordance with the regulations on notifications or complaints of the HCA) notify the GVH.

This provision has resulted in the Public Procurement Act placing an obligation on contracting entities to report to the GVH, if they suspect that there has been a violation of the cartel rules.

INDIA*

1. Introduction

The Competition Act, 2002 ('the Act') was enacted to provide, keeping in view the economic development of the country, for the establishment of a Commission to prevent practices having adverse effect on competition, to promote and sustain competition in markets, to protect the interests of consumers and to ensure freedom of trade carried on by other participants in markets, in India, and for matters connected therewith or incidental thereto. The Act, however, could not be notified immediately due to the challenge to its validity before the Supreme Court of India. As such, the provisions relating to cartel investigations came into effect only on May 20, 2009.

In view of the above, the submissions made herein are based on the limited experience of the Agency in handling cartel cases. At this nascent stage of evolution of the working of agency and jurisprudence of the competition law in India, it is difficult to assess empirically the working and experience of the Agency's working in this regard. Nonetheless, it would be useful to share the steps taken so far to address the issues presented in the roundtable.

2. Relevant Provisions

In terms of the provisions contained in section 3(1) of the Act, no enterprise or association of enterprises or person or association of persons can enter into any agreement in respect of production, supply, distribution, storage, acquisition or control of goods or provision of services, which causes or is likely to cause an appreciable adverse effect on competition within India. Section 3(2) of the Act declares that any agreement entered into in contravention of the provisions contained in sub-section (1) shall be *void*. Further, by virtue of the presumption contained in sub-section (3), any agreement entered into between enterprises or associations of enterprises or persons or associations of persons or between any person and enterprise or practice carried on, or decision taken by, any association of enterprises or association of persons, including cartels, engaged in identical or similar trade of goods or provision of services, which-(a) directly or indirectly determines purchase or sale prices; (b) limits or controls production, supply, markets, technical development, investment or provision of services; (c) shares the market or source of production or provision of services by way of allocation of geographical area of market, or type of goods or services, or number of customers in the market or any other similar way; (d) directly or indirectly results in bid rigging or collusive bidding, shall be presumed to have an appreciable adverse effect on competition.

Definition: Cartel has been defined in section 2(c) of the Act as including an association of producers, sellers, distributors, traders or service providers who, by agreement amongst themselves, limit, control or attempt to control the production, distribution, sale or price of, or, trade in goods or provision of services.

Powers of the Commission: Where after inquiry, the Commission finds any agreement referred to in section 3, it may *inter alia* direct any enterprise or association of enterprises or person or association of

* The views expressed in the document have been researched and analyzed by the officers of the Competition Commission of India and do not necessarily represent the views of Government of India.

persons, as the case may be, involved in such agreement, to discontinue and not to re-enter into such agreement. The Commission may also impose such penalty, as it may deem fit which shall be not more than ten per cent of the average of the turnover for the last three preceding financial years, upon each of such person or enterprises which are parties to such agreements or abuse. Provided further that in case any agreement referred to in section 3 has been entered into by a cartel, the Commission may impose upon each producer, seller, distributor, trader or service provider included in that cartel, a penalty of up to three times of its profit for each year of the continuance of such agreement or ten per cent of its turnover for each year of the continuance of such agreement, whichever is higher. Thus, it is evident that the law provides for aggravated penalties in case of cartels.

The Commission is sufficiently empowered to requisition any information, books or documents from any person for the purposes of the Act. The power of search and seizure is also available to the Director General during investigations.

2.1 *Reactive cartel detection tools*

The Commission under the provisions of the Act may inquire into instances of cartelisation upon receipt of any information from any person, consumer or their association or trade association; or upon receipt of a reference made to it by the Central Government or a State Government or a statutory authority. The Commission has used reactive cartel detection tools in full measure on its enforcement side as and when cases of cartelisation were reported.

(Lesser Penalty) Regulations: The Commission has framed the Competition Commission of India (Lesser Penalty) Regulations, 2009 (Leniency Regulations) to encourage self-reporting by members of cartels. Under these regulations, the applicant may be granted benefit of reduction in penalty up to or equal to one hundred per cent, if the applicant is the first to make a vital disclosure by submitting evidence of a cartel, enabling the Commission to form a *prima facie* opinion regarding the existence of a cartel, which is alleged to have violated section 3 of the Act and the Commission did not, at the time of application, have sufficient evidence to form such an opinion.

In this connection, it is pertinent to point out that so far, Leniency Regulations of the Act have not been very effective in encouraging self-reporting by members of cartels. Barring few isolated cases, the Commission has not received applications seeking leniency from cartelists.

3. *Ex -officio Cartel Investigations and the Use of Screens to Detect Cartels*

3.1 *Proactive cartel detection tools*

The overarching objective of anti-trust policy is deterrence and desistence. By influencing factors of internal and external cartel stability, cartel policy can render the formation of cartels unattractive (deterrence) or can trigger the break-up of existing cartels (desistence).

In the light of the leniency programs not gaining traction in triggering applications, the Agencies need to develop proactive detection tools such as market screens based on economic criteria. In any case, leniency is little more than terminal care for cartels, limiting the consumer benefits of cartel detection in those instances.

If full deterrence cannot be achieved due to ineffective instruments, resource constraints of the competition authority or uncertainty in the markets, proactive cartel detection becomes the only tool available to detect cartels otherwise outside the reach of the competition authority. The Indian experience has been a mixed bag in using proactive cartel detection tools.

The Commission is empowered under the Act to initiate *suo moto* inquiries into any instance of cartelisation. However, such interventions were not based on any institutionalised mechanism of market screening, monitoring media and trade publications, tracking of individuals *etc.* Rather, the same were based on the inputs generated by the Investigation Division (*ex-ante*) of the Commission or through the knowledge derived through collateral proceedings or based on some news reports or anonymous mails *etc.* As noted earlier, at this evolutionary stage, when full capacities are yet to be built, it is neither feasible nor advisable to divert the limited resources and infrastructure from key enforcement activities to market screenings *etc.*

Notwithstanding the above constraints and limitations, the Commission has taken the following measures towards proactive cartel detection initiatives:

3.1.1 *Setting-up of ex-ante Investigation Division*

The Commission has set up an in-house dedicated Investigation Division, which examines structural and behavioural conduct of the market participants in consultation with the inputs from the Economic Division. Based on such exercises, inputs are generated for consideration of the Commission to initiate *suo moto* inquiries.

Further, the Investigation Division reviews the findings/reports of national auditors from the perspective of competition law to detect any possible or potential contravention of the provisions of competition law. Based on such review, matters are brought before the Commission to initiate *suo moto* inquiries. This process has been particularly helpful in detecting instances of bid-rigging in public procurement as the reports of the audit or critically examines procurements done by all Government Departments and findings are accordingly noted in the final reports.

3.1.2 *Commissioning of market research/studies*

As part of its capacity building initiative, the Commission sponsors/commissions studies of the markets to assess the competitiveness of the markets. Such reports also help the Commission in building capacities to screen the markets for its enforcement purposes. Additionally, such reports help the Commission in formulating and modulating its advocacy initiatives in different sectors of the economy. In particular, the following (only illustrative) studies have been conducted so far:

a) Competitive Assessment of Onion Markets in India

The Commission had commissioned a study on "Competitive Assessment of Onion Markets in India" to Institute for Social and Economic Change (ISEC), Bangalore with a view to assess competitiveness in major onion markets of Maharashtra and Karnataka. The study has highlighted certain institutional factors resulting in inefficiencies in agricultural markets that adversely affect not only the farmers and consumers, but also the state of competition in the market. The study comes with many findings and recommendations including indications of collusion among traders in selected markets in Maharashtra and Karnataka that may result in high prices of onion. Factors like significant marketing costs, lack of market infrastructure, control of trade in the hands of few traders, restricting entry for new traders, often strikes by market functionaries *etc.* can also be responsible for high prices of onion. Towards the end, the study has come up with a set of policy recommendations that aim at improving efficiency of market through competition.

b) Competition Law and Indian Pharmaceutical Industry

The Commission had commissioned a study to Centre for Trade and Development (CENTAD) to identify the competition issues in the sector. The study has examined issues concerning working of pharmaceutical sector both from horizontal and vertical point of view. The study highlighted that the

pharmaceutical markets in India are growing at an exponential rate. However, price competition among retailers can be hardly witnessed. The drug promotion matrix reveals that there are various unfair trade practices prevailing in the industry. In fact, authoritative studies, including those by the EU competition commission have noted that pharmaceutical companies spend more on promotion and advertising and less on research and development. There is evidence of inefficient allocation of resources in the distribution of pharmaceutical products as studies available indicate that the profitability margins in the distribution chain are quite high and specially in non-DPCO drugs and non-scheduled drugs in the pharmaceutical industry in India. This has implications for competition in the sector and unfair enrichment through wealth transfers.

c) Competition Concerns in Concession Agreements in Infrastructure Sectors

The study was commissioned to Clarus Law associates, New Delhi with the objective to study Concession Agreements in key sectors like transportation and energy. The study included analysis of key issues in relation to granting of Concession Agreements, Competition Concerns, experience of competition concerns that have arisen in other jurisdictions and role of the Competition Commission of India. The study suggests that the Commission should commence a dialogue with the Planning Commission and each of the sector regulators as well as the various ministries of the Government of India and the State Governments that are actively granting concession agreements. The dialogue should focus on highlighting the competition concerns during the life cycle of the concession agreement and how to ensure that they are taken into account, while structuring, granting and implementing the concession agreement so as to mitigate any potential challenges against them.

d) Public Enterprises, Government Policy and Impact on Competition: Indian Petroleum Industry

The study on “Public Enterprises, Government Policy and Impact on Competition: Indian Petroleum Industry” was commissioned to Indicus Analytics Pvt Ltd. with an overall objective to examine the nature and state of competition in Petroleum Refining. The study indicates that domestic market is close to a monopoly. The study suggests that the most expeditious way of introducing competition is freeing imports. There cannot be competition in exploration and production if refining and distribution are concentrated; and there cannot be competition in refining unless crude is freely importable. Hence, the first condition for a more competitive market is absence of restrictions on foreign trade.

e) Public Enterprises, Government Policy and Impact on Competition: Indian Steel Industry

The study on “Public Enterprises, Government Policy and Impact on Competition: Indian Steel Industry” was commissioned to Indicus Analytics Pvt Ltd. The overall objective of the study was to examine the nature and state of competition in the Indian steel industry. The study suggests removal of export/import curbs which are clearly a pro-competitive measure. The study also suggests that the overseer of the steel sector should be the Commission as the issues of concerns fall in their domain. Any suggestion of setting up an independent steel regulator goes against the standard philosophy of regulation.

f) Competition Issues in the Air Transport Sector in India

The study on “Competition Issues in the Air Transport Sector in India” was commissioned to Administrative Staff College of India, Hyderabad. The overall objective of the study was to look at the issue of competition at two levels – air transport and airports. The other objectives of the study were to provide a market overview, discuss any significant anti-competitive practices by various players and their effects, address implications of this study for Competition Policy and Law in India, and outline issues for advocacy for the Commission. The study pointed out that there is some evidence of price parallelism. This may not be termed as price collusion. However, the Commission may monitor the pricing of the dominant airlines in particular. In general, inter airport competition is limited all over the world, because of various

reasons, partly because relatively few cities are served by two or more airports and also because there are economies of scale in the provision of airports. Airports around the world are subject to significant regulation and also to State ownership. Creation of new airports, expansion of airports and ensuring inter airport competition are important in preserving and promoting a competitive environment in the air transport sector.

3.1.3 *Constitution of internal sectoral units*

Recently, the Commission also undertook an initiative to set-up internal sectoral units comprising of professionals drawn from different streams (law/ economics/finance) of the Commission to examine the various important sectors of the economy to prepare actionable notes based on such competition assessment and screening of the sectors/markets. The units are actively working on the assignments.

3.1.4 *Co-operation with other agencies*

The Commission with its experience in dealing with such economic wrongs (cartels) on the enforcement side has realized the difficulties in gathering the necessary evidence to establish the contraventions. Thus, it is vital that all possible efforts may be made to co-ordinate with agencies responsible for receiving, processing, analysing and disseminating information. This would avoid duplication of efforts and unnecessary expenditure of public funds with no additional tangible benefits.

To increase co-operation with other enforcement agencies, the Commission is broadening and deepening its engagement with such agencies to share the crucial information/data. In this regard, the Commission recently took steps to get itself notified as a “Recipient Agency” under the relevant law to get crucial financial information from the Financial Intelligence Unit (FIU). The FIU acts as an interface between Financial Sector Agencies and law enforcement agencies. It is repository of information, which it periodically shares with government agencies notified under section 66 of the [Indian] Prevention of Money- Laundering Act, 2002. FIU is an efficient source of getting information relating to companies under investigation where investigation horizons extend to foreign jurisdictions. In particular, FIU has information relating to cartels.

4. **Screens for procurement officials**

The Commission has been very active as part of its advocacy mandate in organising workshops and trainings with State Owned Enterprises to sensitise the need and benefits of healthy competition in government procurement.

Though, the Commission has not yet formally released any guidelines for procurement officers, based and drawn on best global practises and experience, it has through its workshops and training programmes with Government Departments, impressed upon the procuring officers to look for the following indicators for a possible and potential collusion in the procurement process:

- a) **Few suppliers in the market that offer the good or service:** A small group of major vendors controls a large share of the market. The good or service is standardized, so that the determining factor in the award is price rather than other competitive factors (such as design, quality, or service).
- b) **Two or more proposals with similar handwriting, fonts, typos, or mathematical or grammatical errors:** Two or more proposals are sent from the same mailing address, e-mail address, fax number *etc.* Two or more proposals reflect that last-minute changes were made to alter price quotes. Bank drafts/ cheques were made from same bank to pay tender documents or

earnest money. The document properties of two or more electronic proposals show that the proposals were created or edited by one vendor.

- c) **Rotation of competing vendors as the award winner over a series of tender awards:** Over a series of awards, various vendors win in rotation. The vendor that wins the award sub-contracts work to losing vendors or to vendors that withdrew their proposals or refused to submit proposals. As compared with prior awards, a smaller number of vendors submit proposals for the current award.
- d) **Submissions of bids by a supplier despite lack of ability to provide the goods or services requested:** A vendor makes statements on the phone or by e-mail indicating advance knowledge of a competitor's prices or likelihood of winning the award.

5. Conclusions

At this nascent stage of evolution of the working and jurisprudence of the Agency and competition law respectively, the Commission has effectively used a mix of reactive and evolving proactive tools (setting-up of *ex-ante* Investigation Division, commissioning of market research/studies, constitution of internal sectoral units and co-operation with other agencies) to detect cartels in a judicious way.

The Commission has also proactively used its advocacy mandate in organising workshops and trainings with State Owned Enterprises to sensitise the procurement officials about the need and benefits of healthy competition in government procurement through potential indicators of collusion.

ISRAEL*

1. Background

It is the opinion of the Israeli Antitrust Authority (IAA), that cartels are no different than any other white-collar crime. In fact, cartels are perceived as more criminal in nature than other similar fiscal crimes, since they inherently include characteristics of organized crime. Cartels tend to be structured, financially organized and clandestine in behavior – just like organized crime syndicates in many other areas.

Stemming from this premise, the course of action best preferred by the IAA for dealing with cartels is through what is called in the antitrust enforcement community – ex-officio investigations.

Through the use of advanced intelligence gathering methods, computer forensic capabilities and sophisticated questioning techniques, the IAA has been able to uncover cartels, even without the cooperation of any member of the undertaking. The investigations team includes 22 employees. Appendix A includes a list of ex-officio investigations of cartels conducted by the IAA in the past five years, followed by a list of leniency-based investigations. As can be seen, the vast majority of cases are ex-officio investigations. Appendix B includes a list of all investigations conducted during the past five years, including both cartel and non-cartel cases.

2. Why turn to ex-officio investigations when there are leniency programs?

2.1 *Leniency programs may have limited success*

The success of leniency programs around the world is un-doubtable and such programs are advocated by the EU and several international organizations. Nevertheless, such programs have had limited success in several countries, Israel among them, to our understanding for two main reasons.

One reason for the limited success is cultural restraints. Israel, for example, is a small country where informants are thought upon as "snitches" and companies who cooperate with the authorities may face a de-facto business and social boycott.

Ex totalitarian societies suffer from a different cultural restraint. In these societies there is usually a tendency to be very suspicious of the authorities, thus preventing potential applicants from coming forward.

Another reason for the limited success of leniency programs is the lack of significant deterrence. For leniency to work, conviction in antitrust violations must result in penalties severe enough so that they may deter potential violators, and incentivize cartel members to be the first to come in and receive immunity. In many countries, the punishments for antitrust violations are not harsh enough to create the required incentive.

* The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law

2.2 *Expanding the scope of cases*

Ex-officio investigations have important advantages, and they should be implemented even when leniency works well. The major advantage of ex-officio investigations is that they obviously expand the scope of possible investigations beyond cartels in which there is an adequate informant seeking leniency. This allows antitrust agencies the flexibility of potentially pursuing all cartels, and not just a possibly small sub-set. It may be that the particular cartels that can be pursued through leniency are less important than many of the other cartels that cannot be pursued through leniency. Accordingly, an antitrust agency with tools for ex-officio investigations can pursue the latter cartels first, and prioritize its limited resources more effectively.

Moreover, relying only on leniency oriented investigations often allows less flexibility in prioritizing among different investigations. When an investigation hinges on the cooperation of an informant seeking leniency, there is often a limit to the possible delay in pursuing the investigation. The informant will not necessarily cooperate, or have access to relevant evidence, in a later period. Accordingly, the prioritization of a leniency-based investigation is dictated by the timing of the informant's approach to the antitrust agency, rather than by the relative importance of the investigation in comparison to other possible investigations the agency could have pursued first. To be sure, many ex-officio investigations are also such that once relevant information reaches the antitrust agency, delays are inappropriate. Nevertheless, while almost all leniency-based investigations share this deficiency, it characterizes only some of the ex-officio investigations.

It should be noted that some forms of collusion are extremely difficult to expose without using a leniency program. In particular, where members know the rules of collusion and follow them routinely, collusion can continue for years without significant communication among members. This makes such cartels much harder to expose via an ex-officio investigation.¹

2.3 *Compensation of victims*

Another advantage of ex-officio investigations is with regard to compensation of victims. In many leniency cases, public exposure of information provided by the applicant to the agency may expose the applicant to damage claims by victims. This causes some agencies to restrict the transfer of information gathered on an informant to private plaintiffs.² Some agencies limit the documentation of information gathered on an informant in order to limit the transfer of such information to support private litigation.³

This may diminish the degree to which the applicant's information contributes to the criminal or administrative proceeding and also harm victims' ability to receive compensation from all of the violators. This is not the case with ex-officio investigations, where there is no such need for restricting the use of information that may in the future be the basis of victims' damages claims.

¹ Bid-rigging, for example, is easier to detect than other forms of collusion. A tender brings uncertainty into the cartel, thereby encouraging cartel members to communicate, and this communication can be exposed.

² See, e.g., *Resolution of the Meeting of Heads of the European Competition Authorities of 23 May 2012*, Protection of leniency material in the context of civil damages actions, ec.europa.eu/competition/ecn/leniency_material_protection_en.pdf.

³ See OECD Roundtable on Leniency for Subsequent Applicants, October 2012, Issues Paper by the Secretariat, page 17, fn 25.

3. Establishing the basis for ex-officio investigations

One of the major requirements for exposing cartels using ex-officio investigations is creating the legal and professional infrastructure required to equip an agency with the ability to locate, investigate and gather evidence against covert cartels.

The main features of such legal and professional infrastructure are detailed below.

3.1 *Adequate Legislation*

As stated, cartels should be perceived in the same way as other white collar crimes. Accordingly, legislation to combat cartels should provide the same investigative tools as provided to the police with regard to crimes such as money laundering and fraud. In particular, antitrust agencies should be empowered not only with the right to search and seize, but also with the ability to investigate suspects. Mere seizure of documents, without the ability to investigate suspects and witnesses about such documents, may be insufficient to successfully pursue cartels. Therefore, creating the legislative basis to enable questioning of suspects is crucial.

The latter is true even in jurisdictions in which cartels are pursued via an administrative procedure rather than a criminal one and the burden of proof required for success is preponderance of evidence rather than beyond a reasonable doubt.

Succeeding in a case against a cartel requires evidence of communication among cartel members. Such communication is not always documented in writing, thereby making search and seizure of documents an inadequate investigative tool. For effective detection of cartels, the antitrust agency needs to examine whether there was communication and who participated in such communication (e.g., via the telephone or otherwise) between suspected cartel members. The antitrust authority's investigative toolkit should include the ability to pinpoint a suspect's locations in particular periods, seek reports regarding the existence of telephone conversations among suspects, and the ability to wire-tap communications among suspects.

These tools are particularly important as violators become more and more sophisticated and able to avoid detection.

Wire Tapping is also very effective for conveying the severity of the violation to the courts. A recording of a conversation between competitors colluding on prices can help convince the court that harsher sanctions are required. Wire taped conversations often convey more accurate information as to the intent of the violators and of the violation's severity.

3.2 *Specialized Investigators*

The IAA's investigations and intelligence department is comprised of former members of security agencies such as the police and the Israeli Defense Forces' Central Investigations Department. Other investigators are former police prosecutors and antitrust lawyers with many years of experience. The IAA believes that specifically trained personnel, with experience in uncovering crimes combined with an adequate legal background, is a crucial part of any antitrust agency's investigative team.

The fact-finding tools of a police or army investigator must be combined with intense training in the complexities of antitrust law, so that the investigator would know what sort of facts to look for in an investigation.

3.3 *Intelligence Abilities*

Creating an effective intelligence system within an antitrust agency's investigations department demands careful recruiting and training of specialized personnel. The intelligence gathering required for uncovering a cartel often involves several months of preparation, and an extensive data-management program.

The IAA's intelligence duties include receiving complaints, recruiting informants, meeting with intelligence sources and constant training. Intelligence data needs to be gathered, evaluated and transformed into workable materials, in order to develop a recommendation whether to initiate an open criminal investigation. At the IAA, the intelligence branch was responsible for uncovering several cartels.

3.4 *Swift and Decisive Investigation and Indictment Process*

In many investigations, most of the incriminating evidence is gathered within the first days following the commencement of the investigation. This requires the antitrust agency to maximize its efforts within the first days of an overt investigation, conducting as many searches and investigations as possible. At times, arrests of cartel members are warranted. In order to keep this momentum, the antitrust agency must refrain, as much as possible, from any recess in the investigation – which may create difficulties in gathering evidence later on.

Another reason in favor of swift and decisive treatment of investigations and indictments is that cartels that reach courts long after they were investigated or conducted often yield poorer court sentences, and witnesses' memories would not be as fresh.

3.5 *Cooperation from the Public*

In the IAA's experience, many ex-officio investigations start from a complaint made by a member of the public or a victim. For example, many of our bid-rigging cases started from a complaint made by a suspecting victim of bid-rigging. Also, several investigations have begun with a complaint by a member of the public or a party who did not participate in the cartel who had knowledge of the cartel's existence.

The prospects of informed complaints coming from the public require public awareness to antitrust law and to what amounts to an antitrust violation. The IAA has been working on increasing such public awareness in a few ways. First, we have created an easy-to-access internet site with a complaint box within the internet site. Second, we have been giving lectures to officials and entities who normally conduct bids, such as government or municipality procurement officers, that point out the clues they should be looking for in order to detect bid-rigging and the precautions they should take in order to help prevent bid-rigging. These lectures also encourage procurement officials to approach the IAA when they suspect bid-rigging. Indeed, in a few of the cases brought to us by suspecting procurement officials, the bid in question was rigged, and the investigation exposed several additional violations by the same parties.

3.6 *Cooperation among Investigative Bodies*

We have found cooperation between the IAA's investigations department and other investigative bodies, such as the police, to be very helpful. It is often the case that cartels involve other offenses, such as tax violations, money laundering and fraud. Cooperation with the police, which is well equipped to deal with these other violations, improves deterrence. Cartel members fear not only antitrust prosecution, but also prosecution following the other violations.

Cooperation with other investigative bodies, and particularly the police, also helps broaden the scope for detection of cartels. Other investigative bodies such as the police often encounter antitrust violations,

but absent awareness to antitrust law tend to focus on other violations more familiar to them – such as fraud and money laundering. Cooperation makes the other investigative bodies more familiar with antitrust law, so that they approach the IAA when they encounter a suspected antitrust violation. Some of the major investigations conducted by the IAA in the past few years were initiated in this manner.

3.7 *Specialized Prosecutors*

In some jurisdictions, although there are criminal sanctions for antitrust violations, it is public prosecutors who handle the case rather than prosecutors who specialize in antitrust. We believe it is important that cases be prosecuted by lawyers who specialize in antitrust law, due to the complexity and special characteristics of the field.

The IAA's legal department includes a dozen prosecutors who specialize in the penal enforcement of antitrust violations. From time to time, the district attorney empowers this team to also prosecute fraud violations committed by antitrust offenders.

4. Conclusion

Ex-officio investigations are, in the eyes of the IAA, a valuable enforcement tool for uncovering the most harmful cartels.

It expands the scope of cases that can be investigated and enables fuller compensation for victims in follow-on suits. The ability to successfully conduct ex-officio investigations requires adequate legislation, specialized investigators, and encouragement of cooperation with the public and other investigative bodies.

We believe the public interest is better served when no member of the cartel can go unpunished and when it is not the informant but the antitrust authority that sets the timing and nature of the case investigated.

APPENDIX A: EX-OFFICIO INVESTIGATIONS IN ISRAEL

Below is a list of ex-officio investigations held by the IAA in the past 5 years, followed by a list of investigations using leniency:

- Water-meters Cartel – October 2009

An alleged wide range cartel in the water-meter market. A suspected cartel involving 2 sectors of the market: the manufacturing sector and the repairs and conversions sector. In each sector the companies allegedly colluded to fix prices and allocate the market between them, mainly through rigging bids for tenders published by a large number of municipalities.

- Bakeries Cartel – May 2010

Alleged price fixing and market allocation cartel among the five major bakeries in Israel. Estimated yearly turnover in the market is 2 Billion NIS.

- Computer Servers Cartel – May 2012

This is a currently active investigation – A wide-range alleged cartel among suppliers of computer servers, data storage servers and network servers. This cartel included a few of the Major Computer suppliers in Israel, as well as some of the smaller companies.

Companies in this cartel are suspected of price fixing numerous bids at the expense of several clients ranging from small businesses to governmental bodies.

- Book Distributors Cartel – May 2013

This is a currently active investigation – A suspected cartel between 6 major distributors of textbooks in Israel, dividing the market between the competitors via bid rigging and coordinated boycotts in cases where tenders did not meet their standards.

- Military Industry Cartel – January 2008

A bid rigging cartel where two companies were suspected of rigging a tender published by the ministry of defense. The tender was estimated at approximately 700,000 NIS.

- Lottery Restrictive Arrangement – July 2008

An alleged restrictive arrangement between two entities possessing permits to run lotteries. During each year of the 9 years that the arrangement lasted, one entity allegedly paid the other 8 million NIS to refrain from running lotteries.

- Contractors Cartel - June 2009

14 contractors, along with the Association of Contractors and Builders, were suspected of boycotting tenders published by the ministry of housing and construction. The tenders were for the project of constructing shelters for areas that were being bombed from the Gaza strip.

- Bid-Rigging During Bankruptcy Proceedings - February 2010

Two companies were suspected that prior to bidding for the sale of an asset during bankruptcy proceedings they had agreed to stop the bidding at a pre-arranged amount, allowing for only one bidder to succeed, in exchange for a side-payment.

- Meteorological Gathering Stations Cartel – January 2011

Two companies were suspected of fixing prices for a tender published by the Israel Meteorological Service. The companies aimed to raise tender prices by 200% and divide the market geographically between them.

- Infrastructure Contractors Cartel - September 2011

Two companies suspected of price fixing a tender published by the Israel land administration that intended to organize the evacuation and destruction of buildings.

- Industrial Laundromats' Cartel #1 - November 2011

A bid rigging cartel regarding a tender published by the department of health intending to organize laundry services for five hospitals.

- Industrial Laundromats Cartel #2 – March 2012

Two companies were suspected that prior to a court-held bidding for the sale of a laundromat's facilities during bankruptcy proceedings, they had agreed to stop the bidding at a pre-arranged amount, allowing for only one bidder to succeed, in exchange for a side-payment.

- Israel Veterinary Medical Association – suspected determination of industry-wide suggested prices by a trade association - November 2011

The veterinarians' trade association was suspected of publishing a pricelist among its members.

- Israel Assessors Association – suspected determination of a course of action by a trade association - July 2009

The association and its directors were under investigation for suspected determination of two different courses of action, the first being the distribution of a recommended fee for professional services and the second was the publication of a letter asking the assessors to refrain from bidding in a tender published by the ministry of defense.

- The Israel Travel Agencies' Union – suspected determination of a course of action by a trade association – June 2009

The Israeli Travel Agencies Union was suspected of determining to its members the exchange rate of the Dollar.

Investigations using leniency:

- Tree Pruning Cartel – December 2010

A suspected cartel between tree pruning contractors, for the purpose of allocating tenders issued by government agencies among members of the cartel and improving contractors' conditions upon winning.

This cartel investigation started off as a leniency oriented cartel, but used additional investigative tools to expand the investigation, and create a joint task force together with the Israeli police and the Israeli military police.

Using evidence gathered via intelligence operations, the investigation expanded to over 30 suspects, including small companies with 3-4 employees and larger companies with over 100 employees.

- Gas Insulated Switchgear (GIS) Cartel – May 2009

Between 1998 and 2004, over a dozen major foreign companies in the international energy market colluded to coordinate prices and allocate customers for GIS components. Using the leniency program in Israel, as part of a global disclosure, ABB representatives came forward to present information involving their participation in the cartel regarding sales made in Israel.

ITALY

The Italian Competition Authority (“ICA”) attaches great importance to the objective of fighting bid rigging in public procurement, considering that in Italy public procurement agencies are relatively numerous and the value of public procurement contracts accounts for about 10 per cent of the national product in Italy.

The discussion on bid rigging in international fora such as OECD has contributed to a greater awareness of the pernicious effects of this practice among the general public and it has led the ICA to revise its enforcement and advocacy strategy in this area. As a first step, the ICA has signed a cooperation agreement with the Authority for Supervision of Public Procurement Contracts (“AVCP”), which has the statutory function of supervising the design of procurement contracts and collects from public procurement agencies a vast array of data pertaining to tenders.

The ICA’ strategy includes the launching of two initiatives to assist procurement agencies in identifying (and reporting to the ICA for information) behavioral anomalies which might be indicative of the presence of bid rigging. First, after consulting with the AVCP, the ICA has issued to all procurement agencies a handbook, based on the *OECD Guidelines for fighting bid rigging in public procurement* (February 2009), with tips and hints for identifying and deciphering signals of potential bid rigging. The handbook is now also available on the ICA website.

The second initiative consists of a “pilot” project concerning screening tests to detect collusive behavior in public procurement tenders; it relies on data and information on tenders collected by the AVCP from the public procurement agencies. The aim is to assess the utility and the performance of some statistical tests in detecting bid rigging on a sample of tenders. The project will be articulated in three phases.

In the first phase, a dataset containing AVCP information and data for the purpose of the experiment will be constructed after defining the perimeter of the sample tenders. In the second phase, screening tests will be carried out on the dataset in order to select those instances showing *prima facie* indicia of collusive behavior. In the third phase, the ICA will evaluate the opportunity to start one or more cartel investigations based on the screening test results. At the conclusion of these investigations, which may or may not lead to an actual infringement, the ICA will assess the overall experiment, in particular the performance of the statistical tests in terms of screening device, and decide whether and how to replicate this experiment in a more systematic way.

The dataset to be assembled will contain relevant information related to a number of product markets appropriately selected. In particular, the dataset will include the following information:

- Identity of the procurement agency;
- Date of publication of the tender notice and the date of award of the contract;
- Description of the size and content of the procurement contract (or lots within the contract);
- Start and end date of procurement contract;
- Method for assigning contract winners;

- Identity of the bidder, or bidders in case of joint bid, that won the tender contract;
- Winner bid price;
- Number and identity of all other bidders to a single tender;
- Identity of firms participating as subcontractors.

Given the experimental nature of this project, the ICA decided that the dataset to be assembled will be limited to data related to products or services whose features – in terms of awarding mechanism, product characteristics and competitive environment - are more suitable for the purposes of the analysis. With regard to the mechanism for assigning contract winners, the experiment will focus on tenders awarded on the basis of the lowest bid *price* as other mechanisms might be used mainly in small size tenders or too complex to be easily included in the experiment. As for the type of product/service and the competitive environment, the project will consider those industries showing factors facilitating bid rigging. The experiment will focus on tender contracts of significant size (to avoid the inclusion of small tenders) and related to homogenous products (where price is key competitive variable for the award of the contract). Furthermore, a preference will be given to tenders affecting national-wide markets as it might be difficult to define the exact perimeter of a subnational market, and tenders with a limited number of participants (below ten) to exclude from the experiment potential instances of “partial” cartels. Finally, the choice will fall on products or services for which there is a sufficiently high number of awarded tenders to ensure the statistical significance of the tests, in light of the fact that bid rigging is more likely in tender procurements occurring on a regular or frequent basis.

In relation to the statistical tests, it is important to mention that the approach of the ICA is to build indicators suitable to be applied automatically to many different product markets: as a consequence, they are likely to be “rough” indicators in the sense that further analysis will be then required before reaching a conclusion on the outcomes. These indicators will be focused on collecting evidence of:

- i) collusive outcomes (*fever indicators*), such as regularities and proportions in winning patterns;
- ii) collusive behaviors (*desease indicators*), such as temporary associations of firms and subcontracting.

The ICA analysis is intended to be neither an ex-post evaluation of specific markets where bid rigging cases are known to have occurred in the past, nor an ex-ante assessment of the probability of collusion in a single tender case. On the contrary, the ICA approach is to propose a range of rather simple indicators which, used in different combinations and supported by further analysis, could lead the ICA to reach reasonable conclusions regarding past episodes of bid rigging. Put differently, the ICA does not follow the approach normally taken in academic studies whereby the researcher builds up one screening test for the specific market (by controlling for the impact of all the main factors); the ICA strategy, instead, is to extract as much information as possible by combining several simple indicators which, if used on their own, would inevitably be poor performers, especially when considering the expected limited size and scope of the dataset that will be used by ICA.

The above-described approach is also driven by the observation that screening tests proposed by academic literature are often difficult to implement in practice for various reasons, including the availability and the costs of collecting data. One area where screening tests have been successfully implemented is the financial sector, in the well-known Libor case. This application has been possible because financial markets are almost perfect (hence, misalignments between similar products are suspects) and an enormous amount of data is regularly collected and monitored.

In terms of status of the project, the ICA is still working in phase one, i.e., in the definition of the perimeter of the sample tenders and the collection of the relevant information. At this stage some difficulties have been encountered in data collection. First, there are instances where procurement agencies fail to send to the AVCP information regarding the tender outcome. The second problem is the difficulty to collect information on the bids of all participants to a single tender, including those that, in the end, are not selected; while not strictly necessary for the construction of the statistical tests, this information might prove useful to carry out further analysis. Initiatives have been undertaken to address these problems, including the possibility of using data collected by private consulting firms.

In conclusion, the above-described initiatives will strengthen ICA's enforcement capabilities and increase awareness of bid rigging phenomenon among procurement agencies in the hope that they it will contribute to enhance ICA's activity in this area.

JAPAN

1. Provisions of the Antimonopoly Act, etc. related to the detection of cartels

Regarding the detection of cartels, the Act on Prohibition of Private Monopolization and Maintenance of Fair Trade (hereinafter referred to as the "Antimonopoly Act") and the Act for Establishment of the Small and Medium-sized Enterprise Agency¹ provide for the following systems.

1.1 *Leniency (Article 7-2 of the Antimonopoly Act)*

When enterprises engaging in cartels or bid rigging etc. subject to surcharges submit a facts report and materials regarding the violations, immunity from or reductions in surcharges would be granted in certain conditions under the leniency program. This program has been introduced since 2006. The aggregate number of reports made under the program is 725 as of March 31, 2013. It is an important tool for cartel investigations.

1.2 *Complaint (Paragraph 1, Article 45 of the Antimonopoly Act)*

It is provided under Paragraph 1, Article 45 of the Antimonopoly Act that "Any person may, when (s)he considers that a fact involving violation of the provisions of this Act exists, report the said fact to the Fair Trade Commission and ask for appropriate measures to be taken.". Complaints may be made by telephone, in writing, and by electronic means through the homepages of the Japan Fair Trade Commission (hereinafter referred to as the "JFTC"). Any suspicious acts that may violate the Antimonopoly Act, such as cartels and bid rigging, could be reported to the JFTC. The number of complaints for the fiscal year 2012 was 9,819. Of these, the number of complaints except for the number of those about unjust low price sales by retailers was 1,646.

1.3 *Requests from the Small and Medium Enterprise Agency (Paragraph 7, Article 4 of the Act for Establishment of the Small and Medium-sized Enterprise Agency)*

It is provided under Paragraph 7, Article 4 of the Act for Establishment of the Small and Medium Enterprise Agency that "the Small and Medium Enterprise Agency may investigate any hindrance to the business of a small and medium sized enterprise due to unreasonable restraint of trade or unfair trade practice by other enterprises (...), report the associated facts to the Japan Fair Trade Commission and seek the appropriate measures to be taken." As such, any suspicious acts that may violate the Antimonopoly Act such as cartels, bid rigging may be reported by the Small and Medium Enterprise agency to the JFTC. (However, no such requests have been made in the past three years.

1.4 *Ex officio detection (Paragraph 4, Article 45 of the Antimonopoly Act)*

It is provided under Paragraph 4, Article 45 of the Antimonopoly Act that "The Fair Trade Commission may, where it considers that there exists a fact involving violation of the provisions of this Act or a fact falling under the purview of monopolistic situation, take appropriate measures on its own

¹ The act providing for the affairs under the jurisdiction of the Small and Medium Enterprise Agency, which has administrative jurisdiction over the policies for small and medium sized enterprises in Japan.

authority.". The provisions are construed as the measures to be taken without the "complaint" as described above. The JFTC's proactive investigation is referred to be "ex officio detection" as those conducted under the provision.

2. Cartel Screens

One example of the JFTC's proactive measures is the ex officio detection described above. There are two types of proactive detection: one is the detection of cartels through the cartel screen from scratch by the authority; and the other is the cartel screen based on uncertain information provided. Whether or how the JFTC conducts the ex officio detection is on a case-by-case basis. Currently, the JFTC does not disclose any substantial information or data to the public regarding the ex-officio detection.

On the other hand, the Competition Policy Research Center (hereinafter referred to as the "CPRC") of the JFTC had been studying the possibility of the utilization of economic analysis for the detection and proof of cartels, making the following reports available. However, the economic analysis described below has not actually been used as cartel screen in any cartel investigations to date.

2.1 *Utilization of Economic analysis in cartel regulation - CPRC Handbook Series No.2 - (February 6, 2012)*²

In this research, the CPRC demonstrated and analyzed the structural factors of the industry prone to cartels using data³ from the manufacturing industry in Japan based on a survey of theoretical analysis. It should be noted that the results of the analysis have certain limits, as not all the cartel cases in the manufacturing industry could be confirmed, so the data used was limited to that on the cartel detected. Nevertheless, the research found out the characteristics of the structural factors of the industry of Japan in which cartels were detected.

First, regarding the relationship between the demand factors and cartel formation, a statistically significant negative effect is confirmed for both the shipment value growth rate and the change in the shipment growth rate. With respect to the shipment value growth rate, the theoretical hypothesis (note: a positive relationship exists between the shipment value growth rate and cartel formation, and a negative relationship exists between demand fluctuation and cartel formation) was not supported. On the other hand, with respect to the change in the shipment value growth rate, the theoretical hypothesis was supported.

Next, regarding the relationship between the supply factors (market concentration ratio and entry barriers) and cartel formation, although not statistically significant, it was observed that a negative relationship existed between market concentration ratio and cartel formation as opposed to the theoretical hypothesis (note: a positive relationship exists between market concentration ratio and cartel formation, and a positive relationship exists between high entry barriers and cartel formation). Regarding the relationship between entry barriers and cartel formation, a positive relationship was observed. In other words, the theoretical hypothesis that the higher entry barriers are, the more easily cartels are formed was supported by the observation.

Based on the results of the analysis above, the probability of cartel formation (cartel occurrence probability) in each industry was estimated, and around the top 30 industries with high probability were

² CPRC report CR07-11 available at www.jftc.go.jp/cprc/reports/index.files/cr-0711.pdf (In Japanese only)

³ The data on cartels from FY1990 to FY2004 was used in the analysis.

identified in descending order. It was found that the top 10 industries with a high estimated probability of cartel occurrence included the seven industries⁴ in which cartels were actually detected by the JFTC.

The analysis provides useful practical guidance for the authority, as the cartel occurrence probability is a useful indicator for discovering or identifying the industry (in which a cartel is deemed to be formed), and estimating the cartel occurrence probability will enable the competition authority, which has limited personnel and other resources, to identify the industries to focus on.

2.2 *Review of Means for Proof in Cartel Cases - Application of Circumstantial Evidence - (June 26, 2013)*⁵

In this report, the methods of proving the existence of cartel based on the circumstantial evidences were reviewed, mainly by verifying the methods of proof used for past cartel cases in Japan. The report contains some examples of relevant facts that may prove the existence of a cartel. Specifically, the following examples of relevant facts are identified in the report: means to ensure the effectiveness of the cartel, meetings with obscure purposes or substances, pay-for-delay, pricing not in accordance with the price movement of raw materials, and too orderly bidding behavior regular bids, etc.

The report also proposes a method for proving the existence of a cartel using an economic analysis of changes in price and quantity for a certain period by taking up past cartel cases.

Generally, it is considered that unnatural concurrent price rises occur primarily due to an increase in demand, a decrease in supply, and/or collusion among enterprises. This report seeks to estimate the existence of collusion among enterprises through identification of the factors for price changes by performing a regression analysis, etc. based on the actual data gathered on changes in demand, supply and prices.

Applying such a method to the past three cartel cases, a price rise of around 3% to 7% was identified, whose cause was estimated to be a cartel rather than demand and supply factors.

These results show that economic analysis is useful for proving the existence of a cartel by showing any unnatural concurrent acts of raising the price by each enterprise (when insufficient evidence is available to prove the communication of intentions), although availability of the relevant data is still at issue.

2.3 *Application of the two research reports of the CPRC to the investigation*

The first analysis indicates the possibility of application to the investigation mainly as the structural screen, and the second analysis indicates the possibility of application to the investigation as the behavioral screen. In other words, the results of the analysis may be used as reference information to identify the industries to be focused on at all times and judge the credibility of the leniency information and the complaint. It should be noted, however, that the analysis is based on the data on the cartels that were

⁴ The seven industries were the following: Motor Vehicles, Parts, and Accessories; Fabricated Constructional and Architectural Metal Products, including Fabricated Plate Work and Sheet Metal Work; Rolling of Non-ferrous Metals and Alloys, including Drawing and Extruding; Miscellaneous Iron and Steel; Printing; Industrial Organic Chemicals; and Furniture. These industries and the following three industries constitute the top 10 industries with a high probability of cartel occurrence: Household Electric Appliances; Electrical Generating, Transmission, Distribution and Industrial Apparatus; Heating Apparatus and Plumbing Supplies.

⁵ CPRC report CR02-13 available at www.jftc.go.jp/cprc/reports/index.files/cr-0213.pdf (In Japanese only).

actually detected, so strictly speaking, the first analysis estimates the probability of cartel detection rather than the probability of cartel occurrence. Accordingly, there may be industries with a low estimated possibility of cartel occurrence in which a cartel actually occurred (and was not detected). Because of this limitation, the JFTC conducts investigations of other industries in addition to those with a high estimated probability of cartel occurrence.

Regarding the second analysis, it is impossible to prove the existence of a cartel from scratch, using the economic analysis, as data on the price of the products subject to a cartel for a certain period of time are usually not available. However, it is extremely useful to consider the consistency between the information obtained under the leniency program, etc. and the change in price, etc. In addition, the JFTC calls for the cooperation of the procurement agencies to prevent collusion and provide information, taking into consideration the fact that bid rigging is frequently seen as a form of collusion. The JFTC also provides specific examples of behavior to which attention should be paid, such as price changes, changes in the bid acceptance ratio and acts to participate in bids as discussed below for the procurement agencies.

3. Screen for procurement officials

The JFTC has training seminars for officials in the procurement agencies and holds meetings with these agencies as efforts regarding the screen for procurement officials. An outline of the efforts is provided below.

3.1 *Training seminars for the procurement officials*

The JFTC provides training seminars for procurement officials of the procurement agencies and dispatches lecturers to the training seminars held by the procurement agencies as efforts to prevent bid rigging. The number of the training seminars held was 235 for FY2012. In the training seminars, it is made clear that any suspicious acts discovered by the procurement agencies that may violate the Antimonopoly Act must be reported to the JFTC. In addition, the examples of the information reported are indicated as follows: (1) the date and time when the procurement agencies receive information on bid rigging, (2) the name of the construction, (3) the (scheduled) date of the bid, (4) the provider of information, (5) the receiver of the report (the person in charge at the procurement agencies), (6) the means of obtaining the information (by telephone, in writing, etc.), (7) the particulars of the information, (8) summary of the response to the information on bid rigging, and (9) the bid results (when the bid is carried out). Furthermore, the information that must be especially reported is indicated as follows: (i) relevant information about the bid including the bid record (not processed information), (ii) the information about the rules for or the methods of bid rigging that is assumed to exist based on the experiences of the procurement agencies, the information received, and other sources, (iii) work of the relevant information about the work of the construction (the publicly available information, the place of announcement about the work of the construction or the annual amount of orders placed for the work of the construction and the other information). Additionally, the textbook actually used in the training seminars explains the overview of the report system and the points to be borne in mind when making a report. The textbook also indicates the cases to be reported as follows, in addition to the information about bid rigging that the procurement agencies receive from the outsider.

3.1.1 *Case where it can be considered that the existence of bid rigging is presumed*

- Case 1

Some regularity of bid results is seen, such as successful bids according to the number of designations of bid participants and the accumulated amount of past successful bids for each type/scale of construction work to be ordered, and the equal number of successful bids among the bid participants.

- (Ex.) Regarding the construction work X ordered by procurement agency A, the value of the orders received for each fiscal year in the past were almost equal among the bid participants, irrespective of the number of orders received.
- (Ex.) Regarding the construction work Y ordered by procurement agency B, the ratios of the orders received (the number of orders received / the number of orders placed) for each fiscal year in the past were almost the same among the bid participants, irrespective of the different number of orders placed for each fiscal year.
- Case 2

Unnatural states were seen where the lowest price was the same for each of several bids, and the other companies except for the one company waived the bids as a result of a series of suspensions of bids, even though no regularity as described in Case 1 above was seen.

- (Ex.) Regarding the construction work Z ordered by procurement agency C, the bid prices exceeded the target price, so the bid was conducted three times. Prior to and during the third bid, the bid participants except for a certain company waived their bid, and thus only the bid participant who had been identified by the information provided made a bid.
- (Ex.) Regarding the construction work U ordered by agency D, the general ratio of contract price to the target price remained at around 95%, however the ratio dropped significantly to around 70% when a certain company participated in the bid.
- Case 3

When the information received by the division in charge of procurement indicates the existence of the rules for successful bids applicable among the bid participants rather than anything related to single bid rigging and also the specific materials, etc. to support it are provided.

- (Ex.) The information provided regarding the construction work V ordered by procurement agency E indicated that the same bid participant would continue to make a successful bid in any works related to the previous work. It was then found out from the inquiry into the past bid results that the relevant bid participant of the previous work actually continued to make a successful bid.
- (Ex.) The information provided regarding the construction work W ordered by procurement agency F indicated that the bid participant to undertake the work would prepare the accompanying documents of the other bid participants. It was then found out from the property of the accompanying documents submitted in an electronic file by each bid participant that the displayed name (the name of the bid participant to undertake the work) was different from the name of the each bid participant.

3.2 *System for reports to the JFTC from the procurement agencies*

The Act for Promoting Proper Tendering and Contracting for Public Works (hereinafter "Proper Tendering and Contracting Act") obligates the procurement agencies to notify the JFTC of the information gathered about the facts regarding the bid and contract for public works sufficient to support the suspicious violation of the provisions of Article 3 or Item 1, Article 8 of the Antimonopoly Act. The number of reports under Proper Tendering and Contracting Act was 14 for FY2012. In addition, the procurement agencies may notify the JFTC of any information on bid rigging at their discretion. The number of

discretionary notifications was 632 for FY2012. The number of bid rigging cases in which legal action was taken, based partially on the information reported or notified as described above for the past three years (FY2010 to FY2012), was four.

3.3 *Liaison officers' meetings*

The JFTC has held liaison officers' meetings regarding bids for public works participated in by the liaison officers of each procurement agency since FY1993 where the liaison officers are the designated personnel of each procurement agency. Their duties are to provide information to the JFTC regarding any possible violation of the Antimonopoly Act and other relevant works. The purpose of the meeting is to prevent any violation of the Antimonopoly Act such as bid rigging by means of ensuring that the liaison officers provide information to the JFTC smoothly and establishing a system for cooperation between each procurement agency and the JFTC. The meetings were held ten times in FY2012.

KOREA

1. Overview

Competition authorities in countries having competition laws in place recognize cartels as one of the most harmful anticompetitive behavior and intensively regulate cartels by putting cartel enforcement as top priorities. Proving that agreements were made is the most significant part of the cartel enforcement but most of these agreements are concluded through secret conspiracies making them very hard to be detected. Regarding the issues, the Korea Fair Trade Commission (hereinafter referred to as the KFTC) has been collectively carrying out various programs to uncover and regulate cartels.

2. Cartel detection method

First the KFTC has been operating leniency program and informant reward program as reactive tools to induce those involving in cartels to voluntarily report their violation and collect information on the violation from the third parties.

In case of leniency program, the number of cases revealed by the program and then imposed fines is on the increase after streamlining the program to enhance predictability and transparency in operating the program since 2005. In 2012, 12 of 13 cartel cases reported through the leniency program were imposed fines. This represents 50% of a total of 24 cases whose fines were imposed, showing that the leniency program significantly contributes to the detection of cartels.

Table 1. The number of cartel cases reported by the leniency program (unit: number of cases)

	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	Total
Number of cartel cases fined (A)	11	14	21	27	24	43	21	26	34	24	297
Number of cases reported by the leniency program	1	2	7	7	10	21	17	18	32	13	132
Number of cases reported by the leniency program and fined (B)	1	0	6	6	10	20	13	18	29	12	118
Ratio between B/A (%)	9.1	0	28.6	22.2	41.7	46.5	61.9	69.2	85.2	50.0	39.7

Second, as part of proactive measures the KFTC preemptively monitors whether the market conditions change in a way that easily induces cartels. In particular in order to have systematic monitoring of bid-riggings, which have significant anti-competitiveness among types of cartels, the KFTC implemented and has been operating the Bid Rigging Indicator Analysis System (the BRIAS) since 2006.

The above-mentioned policy tools which worked in a complicated way are evaluated as the contributing factors that have improved the KFTC's cartel detection both in quality and quantity. In particular harmonious use of the pre and post measures is making significant contributions in a series of process including detecting signs of cartels, conducting ex-officio investigation on cartels and imposing sanctions.

Followings are the specific explanation about “the fact-finding survey on environment inducing cartels” and “the BRIAS” which are conducted to actively detect indications of cartels.

3. The fact-finding survey on the cartel-inducing environment

The fact-finding survey on the cartel-inducing environment annually selects industries with higher possibilities of collusion and then analyzes the results of fact-finding surveys on market conditions and the environments inducing cartels. With followings, we would look into more specifics based on the below “fact-finding survey on the petrochemical industry and analysis on the cartel-inducing environment conducted in 2007”.

Table 2. Contents of the fact-finding survey on cartel-inducing environment

Year	Industry
2007	Insurance industry, petrochemical industry, construction bidding
2008	Oil refining business, bidding for construction of public sector apartment, steel industry
2009	Credit card industry, ready-mixed concrete industry, cable industry
2010	Instant noodle industry, fertilizer industry
2011	Assorted feed industry, agricultural machinery industry
2012	Reference book industry, corrugate board base industry

3.1 *Factors that determine industries to be surveyed*

In selecting industries subject to be surveyed, the KFTC takes into consideration of those affecting the people’s economic conditions and the number of cases detected as cartels. For instance petrochemicals have close connection with the people’s lives as they are used as daily necessities related to food, clothing and shelter. In addition the industry plays core and basis role of supplying basic materials or various industries including electricity, electronics, computer, and automobile and accordingly has the significant level of forward and backward linkage effect. Especially the petrochemical industry is selected to be studied after considering the fact that it is capital intensive equipment industry where there are huge collusion enticements such as difficult market entry by new enterprises; fierce price competition; and meetings routinely held among competitors duce to administration guides that became practices since the beginning of the industry development.

3.2 *Analysis methods: Jointly using the structural and behavioral approach*

3.2.1 *Structural approach*

The structural approach can review market environment, industry characteristics and product features. In the petrochemical market, a large excess supply makes it categorized as a buyer’s market where demanders take the lead in the market, even with the fact that suppliers are big corporations and most of buyers are SMEs and small businesses. Since the 1990s excess supply has been continued reinforcing the condition that demanders have led price determination.

When looking at the industry’s characteristics, there are 40 businesses in the petrochemical industry. With one look the industry as a whole can be seen as competitive market, but most of the markets by products have oligopolistic structure consisted with about 5 to 7 businesses. Especially since the equipment market requires large-scale investment which makes new entry into the market difficult and has almost no competition pressure from other foreign countries, the market is solidifying its oligopolistic structure. The fact that businesses are concentrated in industrial complexes makes easier for the industry to make attempts to form cartels and to monitor each other over compliances of cartels thus making the cartels stably continued.

Considering characteristics of products, flagship products of the domestic petrochemical industry can be used for various purposes thereby having fiercer price competitions than other industries, therefore incentives to form cartels are assumed to be big in the industry. As demand for basic petrochemical and petrochemical derivate products commonly used as intermediate goods is non-flexible, demanders do not have enough capacity to respond to cartels formed by suppliers.

3.2.2 *Behavioral approach*

As for behavioral approaches, pricing methods, activities of relevant associations and impact from the government's intervention such as administrative guidance are reviewed. Regarding petrochemical industry, the Korea Petrochemical Industry Association(KPIA) is working on reviewing factors such as companies' structures, their major business and activities, and then examining whether those factors were equally affected on prices set by businesses, and determined output.

Pricing structures of petrochemical products comprehensively consider pricing factors and non-pricing factors such as manufacturing cost based on the international price for petrochemicals. Weekly announcement from credible companies like ICIS¹ and Platt's² is used as references and balance between supply and demand in and out of the country and changes in raw material price are taken into consideration. As purchase and business activities are done on a monthly basis, factors causing changes in manufacturing cost are incorporated in the next month. As product price is determined at the end of a month, therefore it takes about one or two month in reflecting the factors causing changes of the cost.

The government has constantly made interventions for nurturing the petrochemical industry at its outset, adjusting investment, and streamlining supply and demand. Though many kinds of administrative guidance, the possibility of forming cartels has been high in the industry. Going through the process of achieving government-led growth in a quite short period, the industry has been formed in a way that embraces an oligopolistic structure centered at big corporations. And generalization of administrative guidance made environment for voluntary competition fragile. In 1993 in order to tackle the challenges of world-wide oversupply and price fall and to reduce excessive competition among domestic companies, the Commerce Ministry and the Business Association together pushed forward with authorization of an antidepressant cartel containing determination and maintenance of selling price, and prohibition of domestic sales volume. There are still possibilities of which businesses would make attempts to form cartels under the excuse of administrative guidance.

3.3 *Utilization of the result of the fact-finding survey*

The KFTC uses the result of fact-finding survey as a basic material for preventing cartels or setting up plans for investigation. Sanctions will be imposed by conducting ex-officio investigations when signs of cartels are detected after analyzing the result which is used as internal data.

As for instances, after the fact-finding survey on petrochemical industry, additional ex-officio investigation was conducted and found out that workers in charge of sales in petrochemical companies held meetings by items. The investigation uncovered that they made agreement firsthand on pricing formula which set the standard selling price, and they agreed on and determined specific monthly selling price based on the agreed upon formula. Accordingly remedies and fines of \$ 11.5 million were imposed by the KFTC on these 8 petrochemical companies.

4. **Operation of Bid Rigging Indicator Analysis System (BRIAS)**

4.1 *Overview of the System*

The "Bid Rigging Indicator Analysis System" is an automatic quantitative analysis system which predicts the possibility of bid rigging by analyzing large amount of public bidding information received via online from public agencies including the government, local governments, and government invested

¹ International information provider for the petrochemical industry.

² An website providing energy information.

institutions. Currently the system receives lists of bidding information from a total of 322 institutions that include 51 central government agencies, 246 local governments, and 26 public enterprises.

The system is designed to quantify the possibility of bid rigging by applying weights set by types of information such as rate of successful bids, the number of companies participated in bidding, bid price, the number of failures in bidding and price increases, and conversion to private contracts. For instance, higher rates of successful bids and lower number of participating companies mean more possibility of forming cartels, and the system categorizes and quantifies the severity by dividing it into stages and then adds up the scores calculated by item.

4.2 *Background of the introduction*

The KFTC worked to detect possible bid riggings by requesting bidding information from public institutions ordering goods and large scale construction, but there were limits in analyzing the received paper materials by checking them by hands. In 2000 as the electronic bidding system was introduced, the system was planned based on the ideas that surveillance over bid-rigging would be much efficient if bid information is transmitted to the KFTC from the division in charge of procurement via online, and then the possibility of bid rigging is automatically quantified.

3.4 *Outcome of operation*

By building up the BRIAS, the KFTC gets benefits of suppressing cartels by letting the market know that the KFTC keeps an eye on bid-rigging, as well as having constant monitoring to detect signs of collusion in any bids.

The KFTC conducts ex-officio investigation and down raids after it comprehensively considers whether a certain business wins bids announced by a certain demand institution; bidders repeatedly make same bids; and institutions like the Public Procurement Service (hereinafter referred to as the PPS) and the Board of Audit and Inspection of Korea made request to the KFTC for investigating suspected cases of bid-rigging.

Tangible results achieved from the BRIAS include a case of extension construction of the subway line No. 7 with six construction zones. The system detected the signs of suspected bid-rigging and analyzed the signs received, and then the KFTC conducted field investigations, uncovered cartels, issued remedies and imposed fines of 22.1billion won.

4.4 *Matters need to be improved*

The KFTC is continuously working on to improve the BRIAS, and makes an effort to solve the following issues revealed during the operation of the system. Currently the system receives input of quantitative information on rates of successful bids and scale of bids of construction worth more than 500 million won and bids for purchasing goods worth more than 50 million won. From 2008 to 2012 the system had collected bid information of 34,000 in the five years, and the monthly average is about 570. As such, it is hard to select cases to be investigated for suspected bid-rigging since the BRIAS has many inputs and the contents are simple.

In order to increase detection rate of bid-rigging, changes arose from operating the system such as items analyzing signs of bid-rigging and the evaluation methods, and weights applied to items should be used in the statistical analysis to sophisticate the system. In addition, qualitative evaluations from a person in charge of bidding process such as unusual aspects of biddings of the year, and current condition of the industry should be input into the system as part of enhancing the system, and this needs consultation with ordering agencies including the PPS.

As the system plays a role of detecting cases with higher possibilities of bid-riggings in statistics or experiences based on results of biddings, other evidences should prove whether agreement was made among businesses. However as the result of analysis means applying statistical tools, in some cases, a fact which a case has higher possibilities of bid-rigging can be one of circumstantial evidences. It is needed to consistently enhance the system so that it can be used as an efficient surveillance tool.

5. Monitoring of cartels by public procurement officials

The KFTC is closely cooperating with the PPS so that the public procurement officials in charge of public bids can detect suspected cartels in a timely manner and report to the KFTC for investigation. The KFTC made “the guideline for public procurement officials to prevent bid-riggings”; and provides the education for those in charge of procurement in public bidding; and the guideline uses the followings as examples of indications in detecting bid-riggings.

Table 3. Bid-rigging indications

Classified by	Contents
Bid price	<ul style="list-style-type: none"> -When the highest bid price maintains the same for a long period regarding bids for same product -When price went up without factors inducing price increase -Discount prices is no longer available in a market which traditionally has discount prices -Other companies' bid prices drop significantly when new or occasional bidders take part in -Conducting rebid after a bid in which bid prices were much higher than the estimates -When bid ranking in the rebid is the same with the previous one
Bidding results	<ul style="list-style-type: none"> -When a certain business always wins a certain bid or a bid conducted in a certain region. -When the gap between bid price and the highest bid price is wide without reasons -When there is a trend where same group of businesses participate in bids every time and make successful bids one by one -When certain businesses repeatedly participate in bids together, or certain businesses never join a bidding together -When a successful bidder repeatedly signs subcontracts with those who proposed higher bid price in the same bidding.
Behaviors of bidders	<ul style="list-style-type: none"> -When bid documents submitted by different bidders are similar to each other(when they have identical errors in calculation or inscription) -When there are signs of corrections made right before the submission found in the document -When two or more companies make joint-bidding even if individual businesses can independently make bids -When a company join a bidding even when it has difficulties in performing the contract successfully in the year
Others	<p>When persons in charge of marketing in the supplier or the materials for sales promotion mentioned the followings</p> <ul style="list-style-type: none"> -mentioning that a certain company does not sell its product in a certain region or a certain company sells its products or manages the business in the region. -mentioning “the turn” for a certain company to win a certain bid

When bid-ordering agencies request an investigation, the public officers in charge of procurement in public bidding submit limited materials such as summary description of bids therefore it takes more time for the KFTC to investigate the relevant cases and collect materials. Thereby the KFTC would push forward to facilitate information sharing and exchange with bid-ordering agencies like the PPS so that it would be able to have more efficient monitoring of cartels and conduct cartel investigation more effectively. In addition, the KFTC will have consultation on matters of attaching evaluation materials, along with disclosed materials including summary description of bids so that investigation, started upon request, on bid-rigging would be faster.

LATVIA

1. Proactive and Reactive Detection Measures

In Latvia cartel investigation can be initiated in different ways (any information, including information received from other government/municipal bodies, application received from third parties, leniency application, market inquiries and other information gathered proactively by The Competition Council).

Procedure for initiating an investigation [including cartel cases] is envisaged in the Competition Law of Latvia¹. Law states that investigation of a possible violation [of the Competition Law] shall be initiated on:

1. The basis of an application;
2. The basis of an initiative from the Competition Council; or
3. On the basis of a report from another institution. (Article 22)

In most cases cartel detection in Latvia is based on reactive detection, e.i. – incentives received from third parties, most often – public procurement bodies and surveillance bodies (including The Corruption Prevention and Combating Bureau), customers, in fewer cases – competitors. Leniency programme, although being in force in Latvia since 2004, has been used by an undertaking for the first time in year 2013 [investigation still pending].

The most often used form of proactive detection is market inquiry performed in markets where there is a high potential for cartel foundation or in markets where there is suspicion for existence of cartel beforehand. In most situations proactive detection (market monitoring, inquiry) is started on the basis of information received from public sources, third parties.

The Competition Council should use both means [proactive and reactive] of cartel detection. But there is no clear balance between these methods. For example, if the information received with an application is not sufficient to start a cartel case, it might be used to start a market inquiry or monitoring [except for information received with a leniency application which for some reasons (did not fulfil requirements of the law) was not accepted by Competition authority. This is a hypothetical situation which has not occurred in Latvian practice yet but which is possible and which The Competition Council would treat with precaution in order to maintain the leniency applicants' reliance].

Proactive cartel detection usually is used when there is no evidence in regard to a possible cartel but suspicion exists that certain market might be cartelized. This method requires more human and technical resources in gathering the initial information for starting of the case. It means that choice in favour of proactive cartel detection method is directly related to Authority's capacity issues – available financing and human resources, number of running investigations, other information sources where authority can get additional information about cartels and other factors.

¹ <http://kp.gov.lv/en/regulatory-enactments/norms-on-competition>

The Competition Council is relatively small authority with approximately 40 employees, three investigation [analytical] units, including the newly established Cartel Unit with 6 employees (planned seven). Accordingly all work is planned taking into consideration the above mentioned factors. With given number of employees in Cartel Unit basically all investigations are performed on the basis of received applications not leaving much time for exercising of proactive investigation methods.

The Competition Council has not performed any measurements regarding costs and benefits of each particular investigation model. But from the previous experience and taking into consideration the above mentioned factors, diverting from one method to another and vice versa would depend on:

1. Amount of existing work load (on-going investigations versus number of staff);
2. Current situation in particular markets (problem markets);
3. Prioritizing (more serious cases over less serious which may in some cases be solved for example by means of advocacy; some issues may be postponed if more serious situation occurs or at least significant signals are detected).

In general the proactive cartel detection is more costly and less [directly] beneficial (possibility to gather evidence during market inquiry is less possible than during a cartel investigation when authority conducts inspections). But there are several indirect benefits. Proactive detection strengthens cartel prevention. For example, ex-officio market inquiry in certain market could also serve as a signal for some cartelists to stop infringement, or use the opportunity for leniency application. This might also serve as deterrence for undertakings from creating cartel in the future. Proactive measures create more risks for cartelists to be detected in any market, raises awareness and the effect of deterrence in general.

2. Cartel Screens

The Competition Council has internal methodology for cartel risk analysis and it is elaborated on the bases of *Economic empirical detection instrument* (EEDI) developed by *The Netherlands Competition Authority* (NMa) and methodology „*A Framework for initiating ex-officio Cartel Investigations*” elaborated in the framework of European Commission working group (G.De Bronnet, H.Friederiszick, M.Gabrielsen, S.Grainger, B.List, F.Maier-Rigaud and others, year 2007). This methodology provides a general frame for *structural* sector screens and examples of economic indicators that could serve as indirect signs for possible cartel. In practice a full screen according to this methodology has not yet been performed. Methodology has been applied partly and as a parallel tool within cartel investigations (analysing not only public data, but also information obtained from the parties of the case, which would not be the case in a classic cartel screening situation).

The Competition Council doesn't announce in public when the market inquiry in certain market is started. Undertakings usually get such information when they receive questionnaires.

As mentioned before the Competition Council has not performed a full cartel screen according to the above mentioned methodology but it has in certain situations and even investigation cases used screening methods by means of detailed economic analyses in order to discover signs of cartelization. As an interesting cartel screen example can be mentioned investigation on alleged prohibited agreement between the three leading fuel retailers in Latvia – SIA „*Statoil Fuel & Retail Latvia*”, SIA „*Neste Latvija*” and SIA „*Lukoil Baltija R*”. The case was initiated in 2010, as the above mentioned enterprises over several years had carried out long term simultaneous price changes. During the investigation, the Competition Council carried out dawn raids, as well as used econometric analysis of fuel costs and pricing principles. The econometric analysis included comparison of daily pricing policy adopted by the three companies during the period 01.12.2009. - 30.04.2011. (1 year and 5 months). After considerable analysis of market

participants' data and econometric analysis of market data, investigation was closed as the Competition Council concluded that the fuel retailers have acted according to market situation and that there was no evidence of prohibited agreement. Econometric analysis showed that parallel pricing has not been comprehensive – not in all cases retailers have followed competitor's price change, price changes varied in different regions. All three retailers had different discount practices and marketing activities that indicated brand competition. Prices were not found excessive and regression analysis showed close correlation between fuel retail price and purchase price, which, in its turn, is closely related to fuel stock market price and dollar exchange rate fluctuations. Up to 90% of fuel retail price is formed of purchasing price, VAT and excise duty. During the time from 2007 to 2012, the major fuel retailers' market shares in relation to each other have changed, thus indicating competition between the companies.

Taking the mentioned case as example it can be said that such a screen, including daily pricing analysis of three different companies for almost one and a half year was very consuming process with one employee fully engaged with this case over a period of time. But in any case – Competition Council gathered very valuable experience during this highly complicated market study, it gathered very detailed information regarding the functioning of fuel retail market which allows Competition Authority to see the weak and strong sides of the market and to express professionally its view when discussing this industry.

3. Screens for procurement officials

As mentioned above a considerable part of cartel investigations involve bid rigging and applications in these cases mostly are submitted by the public procurement bodies. Combating bid rigging is one of the Competition Council's main priorities. The Competition Council on a regular basis meets with procurement bodies providing training on how to detect bid rigging patterns. Trainings are arranged both on a regional basis (visiting administrative regions and meeting with procurements bodies of the respective administrative area) and individually. In the last case trainings are held for big public enterprises which are permanently performing public procurements (for example – national energy power supply enterprise *Latvenergo AS*; manager of the state road network - *JSC The Latvian State Roads*; manager of publicly owned woods - *JSC "Latvijas valsts meži"* [*JSC Latvia's State Forests*] and other).

During these trainings we are speaking about most frequently met 'red flags' – indicators for cartelization, such as, for example, bid rotation, illogical similarities (grammar mistakes, matching prices for the same works or products; one representative submitting several independent applications; few applications in a tender where a high competition was expected; sub-contractor issues / schemes; and other). Cases investigated with infringements found are being used as examples.

Besides in the Competition Council's homepage² there is a special chapter dedicated to bid rigging issues, providing both national and OECD's guidelines on how to detect signs of cartelization when assessing tender applications. The Competition Council also provides information on how to act when suspicion regarding eventual cartel rises (regarding, for example, continuation / discontinuation of procurement; information / consultation (formal / informal) with Competition Council, other issues).

Regarding co-operation with procurement bodies it can be felt that awareness on bid-rigging red flags is raising, the Competition Council receives more and more applications from procurement bodies that are addressing Competition Council for the first time. Some have applied repeatedly. We also have to admit that in a couple of cases procurement bodies are 'problematic' – have not addressed Competition Council even in very obvious 'red-flag' cases which might become an issue falling within the competence of The Corruption Prevention and Combating Bureau.

² Also in the home page of Latvian Public Procurement Surveillance Bureau - <http://www.iub.gov.lv/node/146>

LITHUANIA

1. Introduction

The policy of the Competition Council of Lithuania (CC) towards detecting cartels covers a variety of techniques and methods, including a mix of both reactive and proactive methods. Since 2004 the CC launched 41 cartel investigation cases, 14 of which (35%) were opened under its own initiative and 27 (65%) were the outcome of external event to take place before the CC became aware of an issue.

The CC does not prioritize reactive over proactive methods of cartel detection or vice versa and tries to ensure a balanced portfolio approach. A combination of both reactive and proactive methods enhances the overall effectiveness and enforcement of our cartel detection program.

This contribution includes a brief overview of the methods used by the CC to detect cartels, including the attempts to implement screening methods, and discussion on collaboration with public procurement officials.

2. Reactive methods of detecting cartels

Article 24 of Law on Competition of the Republic of Lithuania (hereinafter – Law on competition) states that there are three main subjects that are entitled to request to launch an investigation of restrictive practices, namely:

- undertakings whose interests have been violated due to restrictive practices;
- entities of public administration;
- associations or unions representing the interests of undertakings and consumers.

Additionally, consumers may submit a complaint regarding the violation of their interests suggesting the CC to initiate an investigation.

The CC has established a formal complaint system in place for receiving, handling and responding to complaints. The request to carry out an investigation must be submitted in a written application, specifying the facts and circumstances of restrictive practices of which the applicant is aware and must also be accompanied by the documents confirming the above mentioned facts and circumstances. The CC must examine applications submitted in relation to restrictive practices not later than within 30 days from submission of the application and documentation and take a decision to launch or refuse to launch the investigation.

In terms of the reactive measures, the complaints are still the predominant method of cartel detection. During the past 10 years, 27 cartel investigations were launched through a complaint, 19 of which were submitted by local authorities or public administration bodies in cases of price fixing and bid rigging / collusion in public procurement projects as opposed to 7 investigations launched after the complaints from undertakings or customers have been received.

Furthermore, in 2008, the CC instituted a leniency programme by adopting Rules on Immunity from Fines and Reduction of Fines ('the Leniency Rules') that were applicable solely to horizontal agreements among competitors. Since the day the leniency programme was launched, the CC has received 3 applications so far. In two cases, the leniency applicants were granted a total immunity, while in the third case, it was established that the applicant had not engaged in a prohibited cartel activity at all. The leniency notice was later broadened to include vertical RPM agreements, however, no immunity was granted based on this amendment so far.

In conclusion, 27 of the above mentioned investigations resulted in 17 (58%) cases where cartel conduct has been uncovered. It is interesting to note that 65% of the successful enquires concerned public tender proceedings.

3. Proactive methods of detecting cartels

Article 24 paragraph 2 of Law on Competition states that the CC is also entitled to have the right to start an investigation on its own initiative by adopting a reasoned decision. The CC employs various proactive methods to detect cartels, including media and Internet monitoring, use of economic analysis and collaboration with state agencies. Different methods of detecting cartels are expected to assist the CC to identify suspicious behaviour, initiate subsequent cartel investigations and to better uncover cartel conduct.

However, no specific framework or procedure for initiating *ex-officio* cartel investigations is in force, therefore, the CC follows the same procedure for launching investigations following either reactive or proactive methods. The CC opens an investigation if there are reasonable grounds and evidence to suspect that the anti-competitive behaviour might have occurred. Accordingly, since 2004 the CC has established cartel conduct in 6 out of 14 cartel investigation cases (42%) launched at its own initiative.

3.1 Media and other public resources

The CC has been regularly and consistently monitoring media and the Internet. Once the CC official becomes aware of information that might be significant for detecting cartels, the information is transmitted to the concerned division within the CC. Media monitoring remains the main proactive method to detect cartels, which has already resulted in 10 cartel case initiations so far, in 5 of which cartel conduct was detected.

While monitoring media reports, the CC had reviewed information, including interviews of companies providing comments on their behavior as well as speculations about trends and pricing or allegations that other market players are engaged in anti-competitive activities. As a result, the CC has successfully uncovered cartel agreements on common prices¹ and exchange of confidential information².

The CC has also used press releases to detect other alleged anti-competitive activities. Recently, the CC opened an investigation into the market of the retail sales of clothing, after the CC officials brought relevant information on resale price maintenance (RPM) to the attention of the Anti-competitive Agreements Division within the CC. The comments on RPM were provided by the executive officer of an international chain of fashion department stores and published on a website of financial and business news. The investigation is still ongoing.

¹ For example, *Lithuanian shipbrokers and agents society case* (2S-25, resolution of 8/12/2011) http://www.kt.gov.lt/index.php?show=nut_view&nut_id=1330

² *Paper wholesalers case* (2S-13, resolution of 26/10/2006) http://kt.gov.lt/index.php?show=nut_view&nut_id=695

3.2 *Liaison with other state agencies*

Liaison with other domestic law enforcement agencies has also brought forth useful leads.

In 2009, the Police Department under the Ministry of Interior reported suspected cartels to the CC after it had encountered relevant evidence during the course of its own investigations. Accordingly, the CC has successfully uncovered a bid rigging cartel in the car rental market³. In another case, collaboration with National Audit Office of Lithuania and Lithuanian Road Administration under the Ministry of Transport and Communications also led to the CC opening an investigation into a possible bid rigging in the road building market which, however, was terminated due to the lack of evidence.

Additionally, collaboration with other state agencies has also been beneficial in investigating anti-competitive agreements. In 2007, the CC received information provided by the Ministry of Health of the Republic of Lithuania regarding the possible anticompetitive vertical agreements between producers / suppliers and wholesalers of pharmaceuticals with regard to their participation in public procurement tenders. In the given case, the CC closed an investigation, following commitments proposed by eight pharmaceutical companies⁴.

3.3 *Analysis of previous cases*

The CC once launched an investigation after important background information on bid rigging was gathered in market analysis undertaken in a non-cartel investigation. Even though the analysis of previous merger case has indicated possible cartel conduct and the CC opened investigation into the press service market, the existence of a cartel was not established.

The CC has also triggered investigations following analytical tools of cartel detection trying to identify allegedly cartelized markets.

3.4 *Economic studies and systematic monitoring of industry activities*

In 2009, the CC observed significant retail price fluctuations (increases) in the retail fuel market which, according to the information available to the CC at the time, could not have been reasonably justified by the changes in oil prices. Such preliminary analysis led to a launch of an investigation into potential anti-competitive agreements. However, the evidence gathered during the investigation led to a subsequent closure of an investigation, since the evidence did not prove existence of an anti-competitive agreement in the sector.

Later, in 2010, after having observed substantive price increases in August – September 2010 in the food retail sector and having received additional information from the Ministry of Agriculture, the Competition Council has conducted an assessment of the change in the key input prices as well as the wholesale and retail prices for dairy and grain products. The study showed that recent increase in the input prices alone did not fully account for the extent of the increase in the retail prices for dairy and grain products in the country. The analysis of the CC revealed that the prices for food products (milk and milk products, flour, bakery goods) had not increased exclusively for objective economic reasons and that the fluctuations could have emerged due to a weakening of competition. Based on these findings, the CC has opened an investigation into possible anti-competitive behaviour in the groceries sector with regard to the substantive price increases. The high profile investigation, which is still ongoing, is aimed at assessing

³ *AB Autoūkis, UAB Autodina, UAB Moller Auto case* (2S-28, resolution of 11/11/2010)
http://kt.gov.lt/index.php?show=nut_view&nut_id=1189

⁴ *Pharmaceutical companies case* (1S-137, resolution of 21/07/2011)
http://kt.gov.lt/index.php?show=nut_view&nut_id=1286

whether a number of undertakings engaged in the production and / or marketing of food products have participated in anti-competitive agreements or concerted practices that could have possibly led to the increase in retail prices of mentioned products.

3.5 Screening

In the CC practice, the methods of screening based on economic evidence have not been widely implemented since implementation of such screening mechanism requires extensive resources and does not necessarily provide precise results.

Nevertheless, it must be mentioned that the CC has recently obtained more comprehensive access to the database of the Public Procurement Office of Lithuania, so screening for alleged cartel conduct in public procurement became more efficient. While applying behavioural screens, the CC tries to detect the sequence of winning suppliers, the rotation among them or possible market allocations. The reliable empirical evidence gathered during analysis is useful in identifying suspicious bid rigging in public procurement tenders.

In terms of structural screens, the CC has applied them only once in the course of full investigation into the fuel market. Having data available for the application of screens, the structural screens were chosen as the most appropriate to indicate whether the market concerned may indicate potentially anti-competitive activity. However, the application of cartel screens has not provided reliable results since they varied significantly depending on the screen used. Therefore, the possibility of further development of screening would be considered if a more reliable methodology of screening and appropriate data for such screening were available to the CC.

4. The effectiveness of anti-cartel enforcement

As the analysis of cartel investigations has shown, 62% of reactive investigations resulted in finding a cartel conduct as opposed to 46% of the investigations launched by the initiative of the CC that had the same outcome. However, a slightly higher rate of successful investigations following reactive methods to detect cartels does not eliminate or lessen the employment of proactive tools in the CC's practice. Every time the CC evaluates the possible effects the investigation could bring on a case by case basis.

On 2 July, 2012, the CC adopted a Notice on Agency's Enforcement Priorities ('Notice') which makes it possible to prioritize between investigations more efficiently. The Notice outlines a single priority of the Competition Council, which is to ensure the highest consumer benefit. Notice also outlines three main principles to prioritize investigations:

- the potential impact of an investigation on effective competition and consumer welfare;
- the strategic importance of such an investigation;
- the rational use of resources.

Consequently, in the practice of the CC there is no actual prioritization over cases initiated *ex-officio* and initiated otherwise as long as the highest consumer benefit is ensured and sensitive markets are approached. The CC identifies and promotes those market interventions that significantly contribute to the protection of effective competition with the purpose of maximizing consumer welfare.

In order to make the assessment of the potential impact more objective, the CC has analyzed methodologies for calculation of impact of conducted investigation applied by different competition

authorities around the world, while using the methodology applied by the UK Office of Fair Trading (OFT) as the basis for its own assessment.

The general principles of impact assessment are the following: first, the annual impact on consumers of price-fixing is estimated by multiplying the turnover of the affected goods and services by the price increase caused by agreement; second, the annual impact is multiplied by the number of years the cartel may have remained operational. The value is adjusted by the social discount rate in order to estimate future consumer savings.

As a result, even though reactive methods still play dominant role in practice, the CC tries to be increasingly active in the fight against conspiracies using proactive methods as it also allows uncovering harmful cartels.

5. Collaboration with procurement officials

While it is the Public procurement office that implements the public procurement policy and supervises the procedure of public procurement, the CC tries to ensure effective cooperation with contracting authorities as far as ensuring competition in public procurement is concerned. The CC officials have run seminars for the contracting authorities on how to detect possible cases of collusion in public tenders. The training courses were mainly focused on identification of 'suspicious' bidding patterns unusual in competitive bidding markets. Furthermore, seeking to highlight the usual cartel conduct indicators, the CC publishes the guidelines for detecting bid rigging in public procurement on its website that is based on the OECD *'Guidelines for Fighting Bid Rigging in Public Procurement'*. Consequently, more external players are informed of possible threats regarding public procurement and become aware of the illegality and potential harm of cartels.

The above mentioned training for procurement officials has already triggered a couple of successful investigations, and it is strongly believed that increasing awareness among public procurement agencies and large private organizations of unlawful bidding patterns can help to uncover more cartel conduct in the future. As the data shows, 70% of all the complaints submitted concerned bid rigging practices, which might be an indicator that contracting authorities and state agencies become aware of the threat underpinning the public procurement and advocacy may be playing a role in this awareness.

6. Conclusion

As shown above, the CC recognizes both proactive and reactive measures of detecting cartels. In terms of reactive tools, the complaints remain the main method to identify cartel conduct, while media monitoring is prevailing among proactive tools of cartel detection. However, screening mechanisms have not been widely used by the CC so far. The CC would consider applying screens in case more reliable screening mechanism and sufficient internal resources are available to the CC.

Increasing general external education among public procurement officials has been acknowledged as beneficial and effective with regards to the fact that more contracting authorities become aware of threats of collusion and monitor the bids in public procurement procedure. Increasing number of complaints of contracting authorities or procurement offices regarding bid rigging is a major sign of increased awareness.

MEXICO

1. Proactive and reactive detection measures

1.1 *Please describe your current cartel detection policy: what are the cartel detection measures in place in your jurisdiction? Do you rely exclusively or mainly on either proactive or reactive detection tools? Or does your policy strike a balance between the two?*

The Federal Economic Competition Commission (CFCE for its Spanish acronym, or Commission) cartel detection policy has reactive and proactive measures. The main tool for the reactive approach is the Sanctions Reduction Program (PROGRAM), stipulated in Article 33 bis 3 of the Federal Law of Economic Competition (FLEC or law). Furthermore, the Commission may initiate investigations through complaints filed by any person, whether or not it has been affected by the cartel.

Regarding the proactive approach, the Commission has two main tools: i) statistical analysis of data (screens) and ii) continuous review of publicly available sources that may indicate the existence of a cartel, i.e. at the beginning of September of this year the Commission started an investigation into the corn market in the state of Colima after obtaining a collusive agreement through internet.

1.2 *Please describe the factors that influence the formulation of an optimal cartel detection policy. In what terms do you measure the effectiveness of an anti-cartel enforcement proactive and reactive detection tools? It is possible to measure the cost and benefits of particular proactive or reactive detection measures? What might convince you to divert more resources from reactive to proactive detection or vice versa?*

The Commission considers that the best cartel screening policy needs efficient reactive and proactive measures.

Regarding the reactive approach, the Commission has focused its efforts in developing its main tool, that is the PROGRAM, from two different perspectives: i) by increasing the incentives of those that violate the law to use the PROGRAM (through higher economic sanctions and the possibility of imposing criminal penalties, accompanied by the effective enforcement of the FLEC),¹ and ii) by providing legal certainty to the offenders throughout the PROGRAM's application and admission procedures.²

For the proactive approach, the Commission i) has promoted cooperation with different government agencies to have access to important sources of statistical information and ii) has trained its officials to conduct economic analyzes for cartel detection. Likewise, the Commission developed a search methodology based on the business development model³ that consists of collecting, analyzing, selecting and evaluating information to determine its utility in detecting cartels or interstate commerce restrictions in

¹ For the latter, success stories that give credibility to the Commission serve as deterrent precedents.

² These procedures are publicly available in the Guidance of the Commission's Leniency and Sanctions Reduction Program.

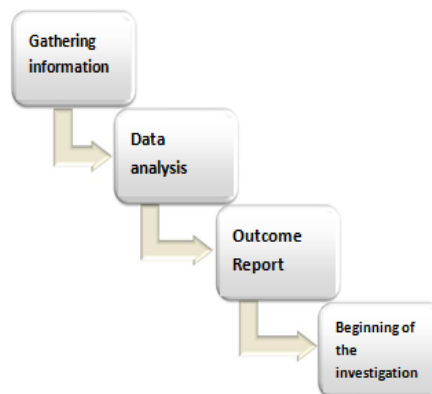
³ Strategies used in the private sector to attract more clients.

domestic markets. The methodology consists of three stages: i) information collection and analysis; ii) selection of useful information and theoretical evaluation for detecting possible cases of success and; iii) determine feasible investigations.

The CFCE does not have a specific methodology for evaluating the effectiveness of each approach. However, the number of investigations initiated, the quality of evidence obtained for each case, the impact of the market investigations, are indicators that demonstrate the efficacy of each measure and provide valuable information to the Commission on which measures are more cost effective for certain cases.⁴

1.3 Please describe your policy towards ex officio cartel investigations. Is there an established framework or procedure for initiating ex officio cartel investigations? Does your ex officio enforcement represent an important part of your anti-cartel enforcement strategy? For example, do you prioritise (or not) ex officio investigations over cases initiated otherwise? If so, why?

Article 30 of the FLEC empowers the CFCE to initiate ex officio investigations. The methodology used by the Commission to initiate an ex officio investigation is:



Currently the Commission is carrying out 11 cartel investigations, which include those initiated ex officio (8) and by claims (3). This indicates that 73% of the investigations carried by the CFCE are ex officio investigations. However, it should be noted that 6 out of 8 ex officio investigations were based on information obtained from the PROGRAM, which represents 55% of all cartel investigations.

In order to give further impetus to ex officio proceedings, the Commission established last year an investigation methodology based on the new research development business model described in paragraph 5. This has led to several pre investigations (based on information obtained through the media) which could lead to a formal investigation.

⁴

The case information of the Commission is included on an annual basis in its annual reports.

2. Cartel screens

2.1 *Please describe whether you have ever considered implementing cartel screens. Which screening approaches (structural / behavioral) and which screening methods have you considered? Which industries or markets have you considered as possible candidates for screening? What are the factors that influenced the decision to implement or the screens under consideration? Do you make public the details of your screening programme?*

The General Direction of Economic Studies is responsible for providing technical support to the General Direction of Cartels and the General Direction of Unilateral Conduct. Some of the technical support consists of conducting screenings for cartel detection and economic analysis of the behavior investigated. This support serves as input to the arguments included in the CFCE's Statement of Objections.

The CFCE's screenings methods lean more towards the behavioral approach, i.e. the identification of :⁵

- A higher list (or regular) price and reduced variation in prices across customers.
- A series of steady price increases is preceded by steep price declines.
- Price rises and imports decline.
- Firms' prices are strongly positively correlated.
- A high degree of uniformity across firms in product price and other dimensions including the prices for ancillary services.
- Low price variance.
- Price is subject to regime switches.
- Market shares are highly stable over time.
- There is a subset of firms for which each firm's share of total supply is highly stable over time.
- A firm's market share is negatively correlated over time.

The Commission's arguments generally include information about the market structural characteristics that favor the formation of collusive agreements, i.e. if the good is homogeneous, consider the number of competitors in the market, the existence of entry barriers, the stability of demand in the market, etc.

The industries or markets that the CFCE considers as candidates for behavioral screening are those that show structural characteristics prone to⁶ the formation of cartels; or those in which the CFCE has information on the likelihood of collusive agreements (the information might come from a manager, a complaint from a consumer, an internet publication, etc.).

- The main factors that the Commission consider relevant for conducting a screening are: i) the availability of human and material resources, ii) the existence of reliable market data, and iii) the time required to perform the analysis and its degree of complexity.
- Finally, it should be noted that the Commission does not make public the details of the screening analysis.

⁵ Harrington, Joseph E., *Behavioral Screening and the Detection of Cartels*, 2006 EU Competition Law and Policy Workshop/Proceedings, pp. 5-11.

⁶ For example: few competitors in the industry, symmetric competition, homogeneous goods, the existence of entry barriers, multi-market contact, etc.

2.2 *If you have experiences with the implementation of cartel screens, please discuss which approaches did you take and which methods did you employ. Were you able to initiate an enforcement action based on the result of a screening exercise? If so, please elaborate and provide details of the relevant cases. For which purposes were screens used (e.g. for justifying unannounced inspections, providing indirect proof of conspiracy, estimating damages, sifting through complaints, etc.)?*

In August 25, 2006 the Commission initiated an investigation in the procurement process of medicines of the Mexican Social Security Institute (IMSS for its Spanish acronym), one of the public health service providers in Mexico. IMSS cooperated with the Commission by granting access to its procurement databases and by giving advice on the latter.

With the databases provided by IMSS, the Commission conducted a behavioral screening to identify the following patterns: i) equal winning and losing positions, ii) convergence in market shares, iii) structural changes in the incumbent firms behavior before the entry of new competitors, iv) high profit margins that did not translate into more competitive positions, etc.

With the results obtained, the Commission decided to initiate an investigation. During this investigation the Commission obtained relevant evidence that reinforced the hypothesis of collusion, as it pointed out the existence of contact and communication between the firms investigated. Finally, based on the results of the economic analysis and the contact and communication evidence, the Commission issued a Statement of Objections accusing the firms of bid rigging in the IMSS procurement process.

To conclude, the economic analysis was useful for detecting collusive behavior and for supporting the allegations made by the Commission against several pharmaceutical firms. In January 28, 2010, the Commission's Plenum issued a decision to sanction four pharmaceutical laboratories for eliminating competition through bid rigging in human insulin (essential for the treatment of diabetes),⁷ during the years of 2003 to 2006, and sanctioned three other laboratories for coordinating bids in IMSS' public procurement of serums. The total amount of the fines imposed was \$130,131,845.48 MXN.⁸

2.3 *If you have experience with the implementation of cartel screens, please discuss the benefits and cost of implementing such tools and what are the possible drawbacks of screening. How did you measure the efficacy of the implemented screens? What obstacles did you overcome or fail to overcome? How costly was it to implement the screening programme? Did the benefits justify the costs? Overall, was your experience with implementation of cartel screens a success?*

Screening costs, in terms of human and financial resources, for the case described in question 5 were low (compared with the benefits described below) since most of the screening was done by Commission's staff (from the General Direction of Economic Studies). The key to its success was the full cooperation by IMSS, which gave access to their procurement databases and advised the Commission during the investigation.

⁷ More information is available at the following link:
<http://www.cfc.gob.mx:8080/cfcresoluciones/Docs/UPVAI/V1/2/1478307.pdf>

⁸ More information is available at the following link:
<http://www.cfc.gob.mx/index.php/publicacionesinformes>

The fine mentioned in paragraph 19 represents approximately 60% of the budget of the Commission (of 2012).⁹ Additionally, as a consequence of this investigation, IMSS redesigned its public procurement system rendering benefits for the institution of several billion pesos more. These figures undoubtedly represent a clear benefit compared to the costs incurred by the Commission's screening and investigation procedure.

The main challenge faced by the Commission in the IMSS case was to sustain its arguments with economic evidence that provided the Commission's Plenum with enough elements to sanction the pharmaceutical firms. Although evidence pointed to the existence of communication between bidders close to the dates in which the tenders took place, the Commission had to support this communication with evidence that led to the conclusion that the patterns showed coordinated bids. For this, the economic analysis derived from screening was crucial.

Nevertheless, it is important to mention that screening results are not infallible, that is, sometimes these alone cannot lead to a sanction (i.e. in the absence of proof of explicit communication between bidders or colluded firms). It is also important to consider that the use of screening has some limitations. For example, it can only be used when there is sufficient information to identify patterns of behavior and, frequently, it requires a lot of time and human resources.

2.4 *If you don't have experiences with the implementation of cartel screens, is there a particular reason why? Have you considered applying screens in the past and decided not to? Why?*

N/A.

3. Screens for procurement officials

3.1 *Do you have guidance for procurement officials to detect possible cases of collusion in public tenders? Do you provide training to public procurement officials on how to detect possible bid rigging conspiracies? What type of red flags have you identified to detect bid rigging cases?*

The Commission does not have its own guidance for fighting bid rigging in public procurement. However, resultant from the successful experience in the IMSS case, the Commission collaborated with the OECD to implement the OECD's Guidance for Fighting Bid Rigging in Public Procurement in several Mexican public institutions.

Through this collaboration, the Commission and the OECD have trained government officials (in the period of 2010-2013) from: i) IMSS, ii) the Institute of Security and Social Services for State Workers (ISSSTE for its Spanish acronym); iii) the Federal Electricity Commission (CFE for its Spanish acronym); and iv) the State of Mexico. Additionally, the Commission and the Mexican Institute for Competitiveness (IMCO for its Spanish acronym) (in the period of 2011-2012) trained, for collusion detection and prevention, government officials from the States of: Quintana Roo, Guerrero, Jalisco, Oaxaca, and Zacatecas. The Commission has also trained public officials from the Ministry of Public Administration (responsible for the oversight of public procurement processes under the Federal Procurement Act).

The training courses are intended to explain to the procurement officials what are the warning signs and patterns that may indicate the existence of a cartel, such as: i) the same bidder wins with the same frequency, ii) there is a pattern indicating rotational assignment in tenders or geographical allocation, iii) some bidders do not bid, remove bids, always make an offer, but never win, and iv) joint bids or

⁹ CFC's budget for 2012 was \$ 221,000,000 MXN. CFC Annual Report for 2012, p.10. Available at the following link: http://www.cfc.gob.mx/Inf_anual2012/pdf/04.pdf

unnecessary subcontracting. Furthermore, the training courses show what to do in case procurement officials identify any of the patterns described above or find some other indication of bid rigging in public procurement processes.¹⁰ In this regard, officers are encouraged to: i) maintain all documents and records that may contain proof of the possible existence of bid rigging; ii) not to discuss their concerns with the bidders; iii) make contact with the internal comptroller of their institution; iv) make contact with the Commission; and v) after getting advice, decide whether to proceed with the tender.

3.2 *How effective is your cooperation with public procurement bodies? Have you been able to launch successful investigations or enforcement procedures? Are the competition authority's interest always aligned with those of public procurement officials? Do the costs of your training or outreach programme justify the benefits?*

As mentioned above, much of the Commission's success in the pharmaceutical market investigation relied in the collaboration with IMSS. Also, as a result of the IMSS case, the Commission initiated collaboration with the Ministry of Public Administration to train its officials.

It should be noted that the CFCE and other public bodies' interests are not always the same. This may be caused by different factors: i) if the officials of these bodies are afraid of being removed from their jobs when finding evidence of bid rigging, and believe this evidence might led to the conclusion that they are involved in the illegal conduct (they are being corrupted), ii) corruption is often mistaken with bid rigging, therefore some officials involved in such illegal conducts do not cooperate with the Commission for fear of being discovered.

Finally, the Commission considers it is important to strengthen competition policy in Mexico from different sectors regardless of the costs incurred. Therefore, the Commission, regardless of the cost, invests a lot of resources in training government officials in the detection and prevention of collusion in public procurement.

¹⁰ For example: i) competitors hold a private meeting, i.e. trade association meetings, ii) the bidder requests or submits a competing bid (same attorneys or representatives), iii) the bidder seeks to determine who is doing an offer and then, perhaps, change the offer, and iv) multiple bidders make similar inquiries or requests.

PERU

1. Proactive and Reactive Detection Measures

1.1 *Please describe your current cartel detection policy: what are the cartel detection measures in place in your jurisdiction? Do you rely exclusively or mainly on either proactive or reactive detection tools? Or does your policy strike a balance between the two?*

In Peru, the Competition Act¹ provides following measures for cartel detection:

- *Ex officio* investigations: As a consequence of market assessment or information processing (such as reports, media and informal claims), the Technical Secretary² of Indecopi³ may initiate investigations and exercise its powers to mandatory request for information, and to conduct dawn raids.
- *Ex parte* legal actions: As a consequence of a formal complaint (typically by an allegedly harmed competitor) the Technical Secretary may start proceedings and exercise the same investigation powers mentioned above. The Competition Commission⁴ of Indecopi decides whether an infringement occurred or not.
- Leniency applications: Being the first to bring decisive information and collaborate with the authority in prosecuting a cartel are the main conditions for obtaining total clemency. Subsequent applicants could apply for a fine reduction bringing relevant and different information.

Ex officio investigations are regarded as proactive detection tools while *ex parte* legal actions and leniency applications are regarded as reactive detection tools. In the last years, the ratio of *ex officio* investigations has increased considerably while reactive detection tools have decreased. Accordingly,

¹ Legislative Decree 1034, published on June 25, 2008.

² The Technical Secretary of the Defence of Free Competition Commission of Indecopi acts as the prosecutor of anticompetitive behaviour, having broad power to investigate, request and gather information about market conditions and agents, to initiate administrative sanctioning proceedings and to issue recommendations to the Competition Commission for the imposition of fines and corrective measures for the commission of anticompetitive practices. The Technical Secretary can also elaborate reports on market conditions and recommend the adoption of guidelines regarding proceedings and competition enforcement.

³ Indecopi is the acronym of Instituto de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (Spanish for National Institute for the Defence of Competition and Protection of Intellectual Property), an independent public body created in 1992 for the supervision of the sound development of free markets. It is necessary to mention that the competition authority for the telecommunication markets is the Organismo Supervisor de Inversión Privada en Telecomunicaciones – Osiptel [Spanish for Supervisory Agency of Private Investment in Telecommunications].

⁴ The Competition Commission is the first instance decision-making body for competition infringements. It has the power to impose fines up to 12% of defendant's gross revenue and up to USD 130 000 (approx.) to the defendant's directives, corrective measures (behaviour remedies), approve guidelines and recommend advocacy measures to the Presidency of Indecopi.

proactive detection tools are currently the foremost instrument to the Peruvian Competition Authority for detection and prosecution of cartels.

Notwithstanding the proactive trend to cartel detection, Indecopi is currently developing a leniency program that would enhance the market participants' awareness of such tool and could therefore increase the number of leniency applications, balancing the proactive and reactive approaches in the near future.

1.2 *Please describe the factors that influence the formulation of an optimal cartel detection policy. In what terms do you measure the effectiveness of an anti-cartel enforcement proactive and reactive detection tools? Is it possible to measure the costs and benefits of particular proactive or reactive detection measures? How do you measure the effect on deterrence of specific detection measures? What might convince you to divert more resources from reactive to proactive detection or vice versa?*

As the Peruvian Competition Authority, Indecopi believes that an optimal cartel detection policy must rely on the following general factors:

- a) Investigation powers: From the perspective of the competition authority, it is crucial to have the possibility to enforce the competition policy with strong investigation powers. The rigorous exercise of powers such as the possibility to conduct dawn raids and to require information *sub poena*, could be determinant of a positive outcome, though this should never mean a defenceless situation of the persons under investigation. Exercising well-designed investigation powers is also essential to encourage *ex parte* legal actions.

In addition, it is necessary to mention that sound investigation powers requires a high level of autonomy and independency from other public bodies, in order to keep the authority focused on the fulfil of its primary goals regarding the enhancement of market efficiency and the deter of anticompetitive behaviour.

- b) Opportunity cost: From the perspective of the persons and firms, an optimal cartel detection policy must make it clear that chances to profitably engage in cartel activities are very low (ideally, they should be zero). In other terms, such policy should deliver the message that the benefits resulting from cartels wouldn't offset the greater loses for conducting in that way, and so it's better for a firm to remain competitive. This factor is especially important to encourage leniency applications and commitments to cease an illegal behaviour.
- c) Competition culture: From the perspective of the society as a whole, an optimal cartel policy would build confidence in the free market system and the benefits from competition policy, and therefore would generate a kind of «competition conscience» that could manifest itself, for instance, in the promotion of the elimination of barriers that enable the existence of concentrated markets [likely to permit cartel activities] and, equally important, the rejection of «cartelization culture» and denunciation –formal or informal– of the suspicious firm activities.

Though Indecopi has not measure the exact impact of our detection tools yet; it is aware that society and media are increasingly interested and informed about the different investigation activities developed by the competition authority in the recent years. However, it would be very helpful to learn from experiences abroad to design a proper system to measure the impact of its activities in the near future.

1.3 *Please describe your policy towards ex-officio cartel investigations. Is there an established framework or procedure for initiating ex-officio cartel investigations? Does your ex-officio enforcement represent an important part of your anti-cartel enforcement strategy? For example, do you prioritise (or not) ex-officio investigations over cases initiated otherwise? If so, why?*

Though there is not a legally established framework or procedure for initiating ex-officio cartel investigations, whenever it is needed the competition officers at Indecopi would gather to evaluate the situation and decide whether an immediate action –such as a dawn raid– would be needed or a less intrusive measure –such compulsory information request– should be more effective. Thereafter, investigation will take-off.

Additionally, Indecopi is developing a special group in charge of responding to situations that require prompt action from the competition authority, such as dawn raids.

Ex-officio enforcement indeed represents the most relevant part of current anti-cartel enforcement activities; it does not, however, reflect a previous prioritization process, but it is a result from the greater emphasis applied to proactive measures [which the competition authority controls to some degree] and the decreasing of the reactive tools [which generally the competition authority does not].

2. Cartel Screens

2.1 *Please describe whether you have ever considered implementing cartel screens. Which screening approaches (structural/behavioural) and which screening methods have you considered? Which industries or markets have you considered as possible candidates for screening? What are the factors that influenced the decision to implement or the screens under consideration? Do you make public the details of your screening programme?*

Currently, the Office of the Chief Economist at Indecopi (Economic Research Management, ERM) is evaluating alternatives to design screening tools for early cartel detection. According to its Action Plan, the Office of the Chief Economist will conduct a series of consultations to update the international experience of peer competition authorities on the matter. A Brief Report will serve as a starting point for the task.

That Brief Report is expected to answer two basic questions: i) To what extent the international experience provides useful recommendations for an effective set up of such tools, and ii) what is the appropriate balance between the sophistication of a tool and the feasibility for its practical implementation and continuous update.

According to Abrantes-Metz and Bajari (2009)⁵, a good screening tool for cartel activity detection should have the following properties: i) it should minimize the number of type I and type II errors, ii) it should be easy to implement and handle, iii) it must be difficult to be fooled by most undertakings, and iv) it must be based on solid theoretical grounds. With those ideal characteristics in mind, the project will continue to develop the technical design and data requirements of a useful and practical tool.

2.2 *If you have experiences with the implementation of cartel screens, please discuss which approaches did you take and which methods did you employ. Were you able to initiate an enforcement action based on the result of a screening exercise? If so, please elaborate and provide details of the relevant cases. For which purposes were screens used (e.g. for justifying*

⁵ Abrantes-Metz and Bajari (2009). Screens for Conspiracies and their Multiple Applications. Antitrust, Vol. 24, N°1, Fall 2009.

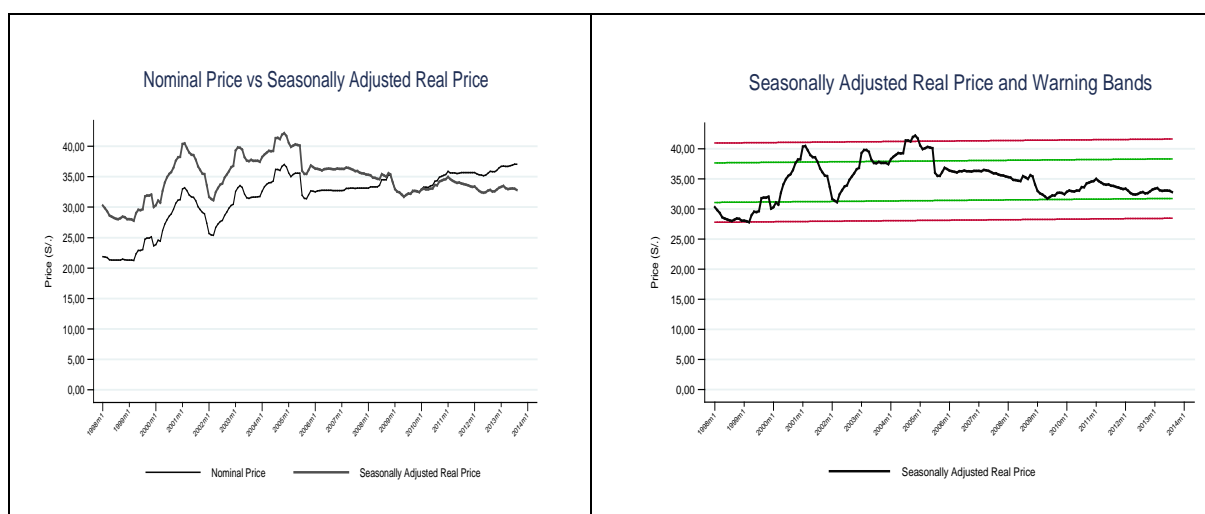
unannounced inspections, providing indirect proof of conspiracy, estimating damages, sifting through complaints, etc.)?

Although, Indecopi does not use any tool for the detection of cartels at this moment, an alternative tool has been employed to the surveillance of markets, through the monitoring of the prices of some products which have strong impact on the average family budget. Thus, since May 2010, a bulletin on average prices to the retail and wholesale of the basic basket of consumption is published monthly.⁶ The price information has a lag of one month and is taken from reports of prices published by the National Institute of Statistics and Informatics of Peru.

It is important to note that due to the aggregate nature of the information presented in the bulletin, the degree of inference from the data is very limited, so it is not possible to determine from this information the existence of collusive behaviour in the analyzed products markets, but it provides an alert about the behaviour of the average of prices of a product when it is located outside its range limit for more than three months in a row, then the need for a structural analysis of the market in demand can be assessed.

Information collected every month is edited to eliminate seasonality component and get a relative price (to a base year)⁷ in order to make a follow-up of the statistical properties showing the analyzed time series. The statistical analysis is presented in a graphic format in which first shows the evolution of nominal and relative price of each product, and then the price adjusted seasonally with regard to their standard deviations (see Chart 1)⁸.

Chart 1. Cylinder of Liquefied Petroleum Gas for Household Use (10 kg.)



Source: INEI

Elaborated: Department of Economic Research of Indecopi

⁶ The price information of products contained in the report presents two different levels of scope. The retail prices correspond to those observed in metropolitan Lima, and the wholesale prices correspond to those observed at the national level.

⁷ The prices are adjusted according to the following procedure: 1) it is expressed in relative terms to a base year (December 2009) and 2) the seasonal component is removed from the price series, in case to present it.

⁸ The standard deviations are used to generate two price bands. The first green line represents the first standard deviation in relation to the historical average price of each product and the second red line represents the second standard deviation in relation to the historical average price.

The products analysed monthly are the domestic LPG, bricks, cement, rice, milk, sugar, vegetable oil, wheat flour, diesel and gasoline (84 oct.), tuna, beer, among others. It is important to mention that this selection of prices is associated with the degree of vulnerability that these markets exhibit given the past experience of cases already identified or investigated by the Technical Secretary of the Defense of Free Competition Commission. Also the reported information is updated according to the detection of positive changes in the average price of products that emerge as outliers of the sampling distribution of them.

2.3 *If you don't have experiences with the implementation of cartel screens, is there a particular reason why? Have you considered applying screens in the past and decided not to? Why?*

In 2009, a working paper was elaborated by the ERM of Indecopi in order to identify economic variables and indicators to the monitoring of markets, the purpose of the study was identify, prioritize and analyze markets with a lack level of competition, that could suggest a market failure of some kind, and determine if further actions were needed it (pre-investigations, market studies, etc.).

In the development of the study, there were contacts with agencies like the Office of Fair Trading (OFT) of the United Kingdom and The Netherlands Competition Authority (NMa) in order to learn from their experience in the implementation of tools in the monitoring of markets. Technical problems presented significant constraints in both cases, data is too aggregated and heterogeneous, and also information availability issues are presented.

Finally, in spite of the international experiences, a set of indicators were proposed as a means to complement the traditional case-by-case (bottom up) approach to searching for problematic markets. The indicators were: i) structure measures (concentration, barriers to entry and market traceability); and, ii) performance measures (productivity, consumer satisfaction, profitability and prices). However, due to the significant doubt about the viability of using 'top down'⁹ data as a starting point for identifying markets suitable for investigation, the proposed set of indicators could not be used in practice.

3. Screens for procurement officials

3.1 *Do you have guidance for procurement officials to detect possible cases of collusion in public tenders? Do you provide training to public procurement officials on how to detect possible bid rigging conspiracies? What type of red flags have you identified to detect bid rigging cases?*

Indecopi has not yet issued official guidance for procurement officials to detect possible cases of collusion in public tenders, but is prone to learn from experiences abroad to design such a proper guidance in the near future.

In spite of this, Indecopi has taken some steps to establish an adequate degree of cooperation between the competition authority and the Peruvian public procurement authority (OSCE). In 2012 it developed a short training program aimed at introducing OSCE officials to basic concepts in antitrust topics and to make them aware of indications of possible anticompetitive behaviour. In the program, Indecopi considered as «red flags» following indications:

- Unusual bidding: For instance, firms submit bids impossible to be considered by the procurement official [for it exceeds the established upper limit or is definitely incompatible with the technical requirements]. Also, where the bidders have unusual formal and substantial similarities in the documents presented to the contracting entity that could lead to a possible coordination of bids.

⁹

A 'top down' approach involves analysing economy wide data sets.

In these cases, investigation could lead to a *cover bidding* agreement. Possible *signalling* behaviour should be ruled out.

- **Unusual patterns:** For instance, a firm always wins procurement processes in a geographical area or to the same contracting body where other equally apt competitors exist. Also, where firms seem to «take turns» to win periodical processes on a regular basis. In these cases, investigation could lead to a bid rotation agreement.
- **Historical inconsistencies:** For instance, a firm stops from bidding in procurement processes whenever it has in the past, in the same geographical, technical or economic conditions, with no recognizable explanation. It also happens in the opposite direction: where a firm starts bidding whenever it has not in the past, with no recognizable explanation. In these cases, investigation could lead to a market sharing agreement by means of *bid suppression*. However, the existence of an existing or a past cartel that the authority could have detected requires an *event analysis*.
- **Others:** Such a particularly strong rejection for some competitors and not to others, manifested in the opposition to the participation of such competitors, with no recognizable explanation. Also, where the contractor that won a bidding process subcontracts its duties with other competitors that participated in that process.

3.2 *How effective is your cooperation with public procurement bodies? Have you been able to launch successful investigations or enforcement procedures? Are the competition authority's interests always aligned with those of public procurement officials? Do the costs of your training or outreach programme justify the benefits?*

Although not under strong coordination and cooperation, the OSCE has regularly sent to Indecopi, information where the former suspects that indications exist about a possible cartel. Meanwhile, Indecopi has always analysed such information and has issued decisions whether it finds or not an anticompetitive behaviour. In addition to the fines imposed by Indecopi, OSCE has the power to punish the bidders in addition [for instance, by disabling them for public contracting] according to public procurement regulations. Another public entity that has taken a collaborative approach to the competition authority is the Social Security Administrator - Essalud.

Indeed, Essalud cooperated in an important bid rigging case detected by the Technical Secretary and penalized by the Competition Commission. Recently it has been confirmed by the Tribunal of Indecopi and is related to procurement processes to purchase medical oxygen for several hospitals in Peru. The Commission found that the three main producers of medical oxygen in Peru [whose joint markets shares where above 90%] have engaged in a bid rigging scheme by sharing the Peruvian market between them for five years. The fines imposed where close to the USD 7,6 million.¹⁰

Though Indecopi and OSCE share an interest for developing efficient markets for public procurement, further cooperation and inter-education would be needed to proper fulfil this goal. Apart from the 2012 training program mentioned before, no further capacity building programs have been developed yet. However, it is worth to mention that a recent agreement was signed between Indecopi and OSCE that will in the future strengthen the link and collaboration between the two agencies.

¹⁰

Please find the commented decision in the following link (in Spanish):
http://sistemas.indecopi.gob.pe/sdc_Jurisprudencia/documentos/1-93/2013/Re1167.pdf

POLAND

1. Proactive and reactive Detection Measures

The cartel detection policy of the Office for Competition and Consumer Protection (UOKiK) is flexible. Although most proceedings are triggered by some form of a tip or a complaint, UOKiK has the authority to initiate formal and informal investigations at its own discretion. Amongst the reactive detection tools used to initiate antitrust proceedings are gathering tips and complaints from market participants (customers, consumers and competitors) and a leniency program. The proactive tools include mostly media monitoring and market studies. UOKiK will soon add bid-rigging screening program to the list of proactive detection tools.

The advantage of relying on reactive tools is the low cost of detection. Their disadvantage is the risk of instrumental use by complainants. The lack - on the side of “whistleblowers” - of the expertise required to properly assess the facts increases the occurrence of false alarms. Although the advantages seem to outweigh the disadvantages of using reactive tools, UOKiK would not be able to maintain an adequate intensity of enforcement without relying on the more costly and complicated proactive detection tools.

Since its introduction in 2004, UOKiK’s leniency programme attracted 46 applications. However, the information supplied by leniency applicants was used only in 3 horizontal agreement cases¹, which accounted for a small fraction of all horizontal agreement decisions issued by the Office. One possible cause of the moderate success of the leniency programme is a rather lax fining policy adopted in the years preceding the introduction of the programme, coupled with the lack of follow-on private damage lawsuits in Poland. A publicly announced and demonstrated toughening of fining policy has apparently resulted in some increase in the popularity of the leniency program, however, not to an extent that would warrant limiting the use of proactive detection tools. The same is true about other reactive tools, as the number and reliability of complaints against alleged cartel activity received by UOKiK continue to be low.

Media monitoring is an uncomplicated and relatively inexpensive proactive tool that proved quite effective in cartel detection by UOKiK. Several horizontal agreement cases were initiated by press articles describing suspicious behaviour. The most spectacular example was the case which occurred in 2002, when 4 large outdoor advertising companies, organised a joint press conference to announce their agreement to decrease the number of billboards by 20% and to introduce a minimum price. Such incidents are becoming less frequent as entrepreneurs’ awareness of antitrust law increases. However, monitoring local media continues to be useful, for example, in detection of taxi cartels. In 2009, information about suspicious e-mail correspondence between insurance market participants was passed to UOKiK by a journalist, only a day before it was published in a trade periodical.

The right to initiate strictly *ex-officio* investigations² enables UOKiK to conduct market studies aimed at diagnosing all potential competitive problems in a given sector. Such market study was used to gather

¹ UOKiK’s leniency programme admits applications from participants of horizontal as well as vertical agreements (such as RPMs).

² All proceedings conducted by UOKiK are from a formal point of view *ex-officio* investigations, since the Office is not obliged to act upon complaints.

evidence that proved helpful in detecting a cement cartel. However, the market study itself was originated by a tip from market participant and leniency applications were later filed. This shows that proactive and reactive tools can be used side-by-side.

UOKiK sees proactive and reactive tools as complements rather than alternatives. It would be difficult to evaluate the effectiveness of each type of the tools separately. Office's mid-term antitrust enforcement policy assumes that both types of tools will continue to be used and both sides of the toolbox will be strengthened. On the reactive side, the leniency program should be expanded to 'leniency plus'. A central database with tips and complaints will be created to improve knowledge management and internal coordination of enforcement activities. On the proactive side, UOKiK will develop a database with public procurement tender outcomes and will use it to implement screening techniques to monitor procurement markets.

2. Cartel screening programmes

UOKiK has considered performing a strictly proactive wide-ranging market screening such proactive screening based on structural indicators (similar to the work commissioned by the UK Office of Fair Trading³). However, our previous attempts to construct concentration indices for industries based on statistical classification revealed that these classifications generally do not overlap well with the product and geographic scope of relevant markets. UOKiK currently does not have a cartel screening plan. The Office does have a program of market studies, but they are aimed at gathering information for various purposes, including competition advocacy and only some are focused on detecting cartel activity.

3. Bid-rigging screening programme

The disadvantage of cartel screens is that they require a large amount of data, which is difficult to gather without alerting potential cartelists. Public procurement tenders are an exception from this rule, as behavioural screens can be performed using publicly accessible data. UOKiK is currently preparing to conduct a wide-ranging screening of public procurement tenders. The data on tender outcomes can be gathered from public databases⁴ or directly from procurement officials. This decreases the costs and increases the efficiency of screens. In 2013 UOKiK helped the Ministry of Regional Development to conduct bid-rigging and corruption screening of road construction tenders. The screening was ordered by the European Commission following the detection of corruption and bid-rigging in 3 large tenders by Poland's Internal Security Agency. UOKiK helped to construct a list of indicators based on the European Commission⁵ and OECD documents. The Office also verified the results of the screening procedure.

4. Using *ad-hoc* cartel screens to sift through cases

UOKiK sometimes applies ad-hoc screens in reaction to tips from industry insiders, consumer complaints or media information, which are not sufficient to open an antitrust investigation or trigger a dawn raid. Such ad-hoc screens are based on both structural and behavioural indicators. Based on the availability of the data and the characteristics of the industry, market concentration and its dynamics, market transparency, entry barriers, industry regulations as well as structural breaks in price levels and price volatility could be examined. The screening procedure begins with analysing publicly available data.

³ "Predicting cartels", Economic Discussion Paper, 2005, prepared for the OFT by P.A. Grout and S. Sonderegger

⁴ Such as the European journal TED (tenders electronic daily)

⁵ European Commission, DG Regio, „Information on Fraud Indicators for ERDF, ESF and CF”, 18/02/2009, COCOF 09/0003/00; http://www.mg.gov.pl/files/upload/10128/EN_Note_on_fraud_indicators_FINAL21022013.pdf

This step is typically followed by a formal fact-finding investigation to gather information from industry participants. Our experience with cartel screens is that they are characterized by a low probability of type-II error (false negatives) but high probability of type-I error (false positives). In particular, they are not very helpful in distinguishing between explicit and tacit collusion. They are often sufficient to show that there is no infringement, but if the test suggests that the probability of infringement is high, further evidence needs to be gathered to support the case. So far we have not been able to initiate antitrust proceedings based solely on such screens.

5. Screens for procurement officials

UOKiK has published a brochure on bid rigging and a bid rigging reporting form in a checklist format. Both publications are targeted at procurement officials and use the list of signals/red flags similar to the list published by OECD⁶. In its efforts to reach out to procurement officials, UOKiK has organised a conference on bid rigging in public procurement in 2012 and issued a regulatory report on competition in public procurement tenders in September 2013. The Office conducted training for the members of the National Appeals Board (the first instance appeals chamber in the national public procurement redress procedure). UOKiK also organized a series of training workshops in cooperation with the Ministry of Regional Development for the authorities that supervise the beneficiaries of EU funds (the so-called managing authorities) with a focus on competition issues in public procurement.

The procurement authorities are generally reluctant to contact UOKiK and report suspicious behaviour. The main objective of procurement officials is to achieve their purchasing plan in accordance with the procurement law. Detecting and reporting bid-rigging is seen mainly as an obstacle, as it creates additional risks with respect to the primary goal. The willingness to cooperate with UOKiK sometimes materialises after the “milk has been spilled”, i.e. after antitrust violations are detected by auditors or supervisory authorities. UOKiK believes that cooperating with supervisory authorities is easier as their goals (effectiveness of public spending and its overall legality) are better aligned with UOKiK’s priorities than those of the procurement officials.

⁶ „Guidelines for Fighting Bid Rigging in Public Procurement”, OECD, 2009

RUSSIAN FEDERATION

1. Introduction

In recent years the struggle against cartels is one of priority directions of the FAS Russia's activity. During 2007-2013 considerable steps aimed at strengthening of combating cartels were taken in Russia.

Necessary changes were added to the legislation (the Law on Protection of Competition, the Criminal Code of the Russian Federation, the Code on Administrative Violations of the Russian Federation). With these changes introduced, a definition "cartel" was harmonized with the international law, a direct administrative liability in the form of turn-over fines for conclusion of anticompetitive agreements was introduced, a special unit on combating cartels was formed in the FAS Russia, cooperation with law enforcement agencies of the Russian Federation was established.

2. Pro-active and reactive measures of detection of cartels in Russia

2.1. Current system of detection of cartels

The system of detection of cartels in Russia is a set of elements of legal, organizational and methodical characters.

2.1.1 Legal support

Nowadays a legislative base and a normative-legal base on combating cartels include more than 20 documents.

Key documents in the field of cartel detection are the Federal law of July 26, 2006 No. 135-FZ "On Protection of Competition" (further – the Law on Protection of Competition), the Code on Administrative Violations of the Russian Federation and the Criminal Code of the Russian Federation that provide for application of measures of administrative and criminal liabilities for cartel activity.

2.1.2 Organizational support

In August 2008, a special unit - the AntiCartel Department was formed in the Central Office of the FAS Russia. Key objectives of the Department have been implementation of enforcement activity on detection and suppression of cartels (other forms of collusions and coordination of economic activity), interaction with the law enforcement agencies and the supervising bodies within implementation of the activity specified, organizational and methodical support of antimonopoly authorities' activity on detection and suppression of cartels, participation in improvement of normative-legal base in the sphere of combating cartels, as well as creation among economic entities and in the society of atmosphere of intolerance to cartels and inevitability of strict punishment (up to imprisonment) for participation in them.

Staff of regional offices of the FAS Russia are also involved in combating cartels.

2.1.3 *Methodological support*

The methodological support system on combating cartels in Russia includes information-reference publications, presentation materials, books, scientific articles as well as training movies (in total more than 30 items) made on the basis of the practical experience of the FAS Russia's staff.

Important stages of the methodological support of activity in the field of combating cartels are gathering, generalization and distribution of national experience.

At present the system on effective combating cartels is created in Russia. The system includes the following:

- carrying out the "Best Cartel Case" competitions (such competitions took place in the FAS Russia in 2009-2011);
- edition of publications "Combating Cartels" containing descriptions of antimonopoly cases, antimonopoly authorities' case decisions, instructions issued to defendants, rulings of antimonopoly and judicial authorities;
- regular conference calls on topical issues on combating cartels.

2.1.4 *Tools on detection and proof of cartels*

In view of special complexity of detection and proof of cartels the FAS Russia pays particular attention to improving forms and methods of its activity in this direction.

An important stage of work on detection and proof of cartels is obtaining information on possible anticompetitive agreements which sources can be:

- confidential information from representatives of economic entities sustaining losses because of anticompetitive actions of other economic entities;
- information from law enforcement agencies;
- information of mass media;
- official statement to the antimonopoly authority about the facts of violation of the antimonopoly law;
- explanations of representatives of economic entities;
- information received during inspections of economic entities ("dawn raids");
- information received as answer to an inquiry;
- giving oneself up with a confession of being guilty.

One of the most effective ways to obtain information and proofs of existence of cartel agreements is gathering such information and proofs during unscheduled inspections with use of procedures of check-up of rooms and documents of the person under checking (in foreign practice, "dawn raids").

Since the Russian legislation has got norms allowing the antimonopoly authority to carry out unscheduled inspections, the FAS Russia has actively used tools of such inspections in its practical activities. In 2009-2012, the FAS Russia made more than 150 dawn raids of economic entities.

An important element of tools for obtaining information on existence of cartels, as well as on their proof, is exemption from liability for participation in the cartel provided for by Article 14.32 of the Russian Code on Administrative Violations. (so-called “leniency program”).

During 2010 - 2011 the right to apply for a leniency program were exercised by more than 40 economic entities, whose statements served as a basis for decisions on violation of the antimonopoly law by antimonopoly authorities.

It should be noted that on the main page of the official site of the FAS Russia the information on a procedure to apply for a leniency program (<http://fas.gov.ru/about/structure/cartel/>) e-mail and phone number to communicate with persons authorized to take such applications is published. The circle of these persons is restricted. When taking such applications the FAS Russia in accordance with the current legislation of the Russian Federation provides confidentiality of received information.

Also in the Russian anticartel practice electronic proofs, including data from computers of checked persons, video, photos, audio recordings, data of operators of electronic trading floors, communications operators, TV- and radio companies, is extensively applied.

For increase in productivity of gathering and the analysis of electronic proofs the FAS Russia along with the Expert and Criminalist Center of the Ministry of Internal Affairs of Russia has created a special equipment – the “Search” system that allows carrying out copying of information from various electronic devices, with its subsequent decoding and recovering of deleted files.

Nowadays the “Search” system is actively used in inspections carried out by the FAS Russia.

2.1.5 Practical interaction with the law enforcement agencies

In 2004, for the purpose of increase in activity effectiveness on prevention and suppression of violations of the antimonopoly law the provision “On a Procedure of Cooperation between the Ministry of Internal Affairs of Russia and FAS Russia” was adopted. The Procedure provides for exchange of information between authorities, rendering practical assistance to employees of the FAS Russia when carrying out inspections, an order of making by the Russian Ministry of Internal Affairs of decisions on initiation of criminal cases upon materials represented by FAS Russia etc.

Interaction between the FAS Russia and the Ministry of Internal Affairs of Russia has kept developing. So, in 2012 the following took place:

- permanent operative-investigating group of representatives of the FAS Russia and Police was created;
- unscheduled inspections made by FAS Russia in interaction with representatives of law enforcement agencies took place. Specialists of antimonopoly authorities took part in tens of investigative actions (searches, interrogations) carried out by law enforcement agencies.
- together with the Ministry of Internal Affairs of Russia the basic methodical materials on an order of reveal and documenting of crimes connected with violations of the antimonopoly law. These materials are recommended for use in practical activities of divisions for economic safety of the Ministry of Internal Affairs of Russia;
- draft federal laws on adding changes to the legislation on operative-research activity, Criminal and Criminally - Procedural Codes, etc. were developed.

3. Formation of optimum system of detection of cartels

The optimum system of detection of cartels in each country can have the its own distinctive features. At the same time the system of detection of cartels has to include obligatory elements without which it won't be able to function. First of all, it is a question of availability of an appropriate legislative base and a normative and legal base defining a necessary scale of powers by the antimonopoly authority as well as the necessary up-to-date tools for detection of information and proofs that are necessary for disclosure of a cartel.

Thus, it is necessary to understand that a fault of any element of this system can reflect negatively the system in whole, and even make its functioning impossible.

In modern conditions when one can see a technical progress and growth in "refinement" of violators of the antimonopoly law, it is particular important to keep in mind the necessity to improve elements of the cartel detection system in order to have the system function effectively.

It is also necessary to pay attention to an aspect of proof of existence of cartel.

When proving a cartel the antimonopoly authorities deal with two categories of evidences:

- direct evidence indicates directly facts of violation that are documents (contracts, agreements, minutes, statements, letters, etc.) as well as testimonial evidence;
- indirect evidence indicates the collateral facts that have cause-and-effect relations or other relation with facts of violation (the analysis of behavior of economic entities, the market analysis, mathematical examination).

3.1 How to get direct evidence?

As it was mentioned above, the most effective way to obtain direct evidence for cartel cases is to conduct an unscheduled inspection.

Direct evidence can be obtained by means of realization of the following powers of the antimonopoly bodies:

- inspection;
- obtaining of explanations;
- request for documents (information);
- a voluntary application on violation to the federal body from a person (a group of persons) under the Note to leniency program.

It is worth noting that in recent years a tendency to transformation of forms of evidence on existence of cartels from written evidence having signatures and seals to encrypted electronic documents.

«Evolution» of form of evidence of cartel existence

Before 2007	2007-2009	2010-2013
1. The content of a document was clear (setting up a cartel); 2. The name of an economic entity was clear; 3. The document was signed (sealed).	1. The content of a document was clear (setting up a cartel); 2. The name of an economic entity was clear; 3. The document was not signed (sealed).	1. The content of a document was encrypted; 2. The name of an economic entity was encrypted; 3. The document was not signed.

3.2 *How to get indirect evidence?*

The main way to obtain indirect evidence is an economic analysis that includes analysis of behavior of economic entities and market analysis.

The economic analysis is aimed at proving synchronism and uniformity of actions of economic entities in absence of objective economic reasons, and (or) activity of economic entities is directed against their own interests, and (or) actions of economic entities couldn't take place under any other conditions, except as on condition of existence of collusion among them (proof by contradiction).

Regarding the system of detection of cartels in a context of application of pro-active and reactive measures, it should be noted that app. 80% of cartel cases detected in Russia were revealed by application of pro-active measures. It is impossible to answer unambiguously whether it is good or bad. Russia is the country with a rather "young" system of the antimonopoly regulation of the age of barely more than 20 years. During this period the country leaders and, of course, the antimonopoly authorities have come to accept the danger of cartels and need to form an effective system on cartel disclosure. As a whole, it is possible to say that this task is solved rather successfully.

However, awareness of gravity of violations made and understanding of possible consequences (including, use of measures of criminal liability) by Russian economic entities haven't reached that level which is observed in the countries with more "mature" system of antimonopoly regulation in which violators most actively use the leniency program.

At the same time, "demonstration" of ability of the antimonopoly authority to detect cartels due to pro-active measures, in turn, can be incentive for economic entities to apply for the leniency program.

Picking up a question regarding costs, both financial and the human, connected with cartels disclosure, it is possible to believe that in application of pro-active measures such costs will be less. Though there wasn't special researches on this question in Russia conducted.

3.3 *Examples of cases won due to use of pro-active measures*

3.3.1 *Chemical cartels*

The cartels revealed by FAS Russia in the chemical industry during 2010 - 2012 can be considered as professional achievements of the antimonopoly authorities. As a result of this work the whole layer of the worst violations of the antimonopoly law, was opened and shown to society. It is not exaggeration to say that consequence of these violations negatively affected all citizens of the Russian Federation. Examples of cartel cases in the chemical industry shows scales of spread of this dangerous phenomenon in the Russian economy.

The first case in a series of "chemical cartels" is the case of violation of the antimonopoly law under a code name "CHLORINE".

An investigation started in spring 2010 within an unscheduled inspection on observance of the antimonopoly legislation by the "Kaustik, JSC" (Volgograd city). The inspection showed participation of the company in a price collusion and collusion on a chlorine market sharing.

In total more than 10 unscheduled inspections in Moscow, the Moscow Region, Nizhny Novgorod, Volgograd, Kemerovo, Novocheboksarsk (Republic of Chuvashia) were conducted. In these inspections along with specialists of FAS Russia the law enforcement officers took part as well.

During inspections tens of documents and electronic files confirming existence of the cartel were received.

As it was established during consideration of the case, in 2007 all main producers of chlorine: Kaustik, JSC (Volgograd), Khimprom, JSC (Novocheboksarsk), Khimprom, JSC (Volgograd), Hloraktiv, CJSC, Bekborn, LTD, a group of persons including Sibur, LTD, SIBUR Holding, CJSC and Sibur Neftekhim JSC, a group of persons including TD Khimprom, LTD, PO Khimprom, LTD, concluded the agreement on price fixing and sharing of the commodity market of chlorine by sales volume and structure of buyers.

The cartel operated within the territory of the whole country for quite a long time, 3 years and 6 months.

Researches of the market showed that during existence of the cartel the prices on liquid chlorine in containers grew up from 3 to 5 times.

Actually, all consumers of chlorine suffered from actions of cartel. First of all, the Russian water utilities suffered from the cartel which led to rise in prices of tariffs for drinking water.

During consideration of the case one of participants of the cartel applied for release from liability on the basis of the note to leniency program.

Within the administrative proceedings, the defendants were imposed fines of more than 50 million rubles (1.6 mln. US Dollars).

On the fact of organization of the cartel, the Central Investigation Department of the Ministry of Internal Affairs of Russia in Moscow opened a criminal case on the grounds of violation of paragraphs "a" and "b" of Part 2 of Article 178 of the RF Criminal Code.

Within the investigation of the cartel on the chlorine market some materials of existence of a cartel in the cable elastons market were received.

In particular, within the inspection of the Bekborn, LTD, a report of "Group First Chemical Company, CJSC" on sales of cable elastons by Russian producers in 2004 - 2005 was found out.

According to the report, leaders of "Group PKhK, CJSC", "AK Sibur, JSC", "Caustic, CJSC", "Vladimir Chemical Plant, JSC", "Plastcab, JSC" and their dealers (in particular, Sibur's dealer - "Bekborn, CJSC") reached an agreement on pricing and market sharing by the sales volume of goods and customers. Then "Sayanskhimlast, JSC" joined that agreement.

For example, the agreement established sale quotas of cable elastons for “AK Sibur, JSC” - 3000 tons, “Caustic, CJSC” - 3000 tons, “VKhZ, JSC” - 2000 tons, “Plastcab, JSC” - 500 tons, and “Sayanskhimlast, JSC” - 800 tons.

During consideration of the case on cable elastons from an application for exemption from liability on the basis of the note to leniency program was received from one of participants of the cartel.

The FAS Russia's Commission on the consideration of the case on violation of the antimonopoly legislation found the cartel existence in the market of cable elastons in 2004 – 2005. However, in view of expiration of time limitation (a time limitation on antimonopoly cases are 3 years) had to close that case.

Thus, case papers were sent to the Ministry of Internal Affairs of Russia for making a decision on initiation of legal proceedings concerning officials of abovementioned enterprises as within criminal proceedings the time limitation of 10 years didn't expire.

One more case from a series of chemical cases is a cartel case on a gepsol (geksol) market.

The substance is applied in the tire and rubber industry.

The interesting feature of the gepsol market is that producers of gepsole in the Russian Federation are only two enterprises: Kaustik, JSC (Volgograd) and Skoropuskovsky Sintez, JSC (Skoropuskovsky Sergiyevo - the Posadsky region of the Moscow Region).

Liga, JSC and Skoropuskovsky Sintez, JSC being actually monopolists in the gepsol market, divided the relevant commodity market, coordinated and supported prices in it. For example, competitors's sale prices for gepsol from 2008 to May, 2010 differed no more than for 0,13%.

The FAS Russia's decision on violation of the antitrust law was appealed by defendants in court that acknowledged legality of the FAS's decision. According to the appeal of the specified decision respondents gave up further procedures on appealation, and the FAS Russia's decision came into force.

Case papers were sent to law enforcement bodies for making a decision on initiation of legal proceedings according to Art. 178 of the Criminal Code of Russian Federation.

The largest cases on chemical cartels initiated by specialists of the FAS Russia were cartels participants of which were producers, their control companies and dealers working in the market of liquid caustic soda and PVC.

3.3.1.1 Cartel in the caustic soda market

Liquid caustic soda is widely applied in pulp and paper industry; for saponification of fats in production of soap, shampoo and other detergents; for etching aluminum and in production of pure metals; for production of oils in oil processing.

The cartel on fixing prices and sharing of caustic soda market existed since 2005 and covered the territory of the whole country. Many branches of the Russian economy suffered from the cartel illegal activity because of an essential rise in prices for products.

Besides materials received as a result of numerous unscheduled inspections, the data of the economic analysis were actively used to prove a cartel. To carry out the economic analysis the documents from tens of participants of the market for some years were requested. As a result the amount of case papers exceeded 300 volumes.

During carrying out market analysis, it was established that participants of cartel sent product surplus abroad at lower prices in order to support the high prices for the Russian enterprises.

According to the FAS Russia Commission's decision of 27.12.2011, defendants, among which: "United Trade Company", "Sibmanagment", "Khimprom" (Volgograd city), "NPO Reagenti", "Sayanskhimpast", "Siberian Chemical Company", "Ilimkhiprom"; a group of persons of "Sibur", "Sibur Holding", "Sibur Neftekhim"; a group of persons of Mineral and Chemical Company "Eurokhim", "Novomoskovsk Azot JSK, "Novomoskovsky Chlor"; a group of persons of "Bashkirskaia Khimiia", "Kaustic" (Sterlitamak); group of persons of "Renova Orgsintez", "Khimprom" (Novocheboksarsk); a group of persons of "Nikokhim", "Kaustic" (Volgograd); a group of persons of "HaloPolymer", "HaloPolymer Kirovo-Chepetsk"; a group of persons of "Khimprom Trade House (Kemerovo city), PO "Khimprom" (Kemerovo city) were found guilty of a violation of the antitrust law by means of creation of a cartel on price fixing and sharing of the caustic soda commodity market.

Upon the fact of the cartel organization, the Head Investigative Department of the Ministry of Internal Affairs of Russia in Moscow brought a criminal case on signs of violation of paragraphs "a" and "b" points of Part 2 of Article 178 of the Criminal Code of the Russian Federation.

Defendants were imposed fines at the sum of more than 1,6 billion rubles.

Some materials containing signs of violation of the tax legislation were sent to the Federal Tax Service of Russia. As a result of carrying out additional tax inspections, the participants of the cartel were additionally imposed taxes on the sum over than 1,4 billion rubles.

After the FAS Russia's was made the cartel actually stopped its existence. The FAS Russia's decision was supported by courts of two instances.

3.3.1.2 Cartel in PVC market

One of products of the chemical industry without which it is difficult to imagine the modern life is polyvinylchloride (PVC) which is used for production of window profiles and frames, pipes, other construction materials, medical products, imitation leather, film materials etc.

As it was found by the FAS Russia, some enterprises being participants of a cartel in the caustic soda market (Kaustik, JSC (Volgograd), Kaustik, CJSC (Sterlitamak), Sayanskkhimplast, JSC) under leadership of the United Trade Company, JSC created also a cartel on sharing a PVC market.

The cartel operated on for not less than 5 years. It was revealed during studying of the materials received within unscheduled inspections. The main proofs of existence of the cartel were an agreement concluded by its participants, their correspondence and conclusions of the economic analysis carried out by FAS Russia.

The participants of the cartel are being faced fines in total several bln. rubles. Case papers were sent to the law enforcement bodies for making a decision on initiation of criminal case under Art. 178 of the Criminal Code of Russian Federation

3.3.1.3 Pollock cartel

An antimonopoly investigation in the market of production and wholesale of pollock and products of its processing was started upon a request of the Government of the Russian Federation simultaneously with an investigation of a violation of the law on strategic investments.

It was found that an annual increase in quotas provided for a pollock catch for 2007-2009 the volume of deliveries to the Russian market didn't lead to increase and made only 60-70 thousands of tons, and increase in quotas led only to increase in export. Needs of the Russian consumers for pollock and products of its processing weren't provided in corpora in 2007-2009 that resulted in deficiency of these goods.

It is confirmed by the fact that during 2006-2010 the pollock and products of its processing were imported to the territory of the Russian Federation (generally from China that doesn't catch this sort of fish).

It was possible also because of the fact that in April, 2006 a number of the economic entities which operated in the market of production and wholesale of pollock and products of its processing within the territory of the Russian Federation, formed a cartel aimed at establishing and fixing prices for pollock and products of its processing, as well as regulation of production of pollock products and volumes of its sale in the Russian market.

Coordination of activity of the Pollock Cartel was carried out "under a sign" of an official structure – the Associations of Pollock Fishermen.

Besides a formal membership in the Association, participants of cartel were united by joining to anti-competitive decisions and agreements made at Association's meetings on prices, volumes, terms of deliveries of pollock and products of its processing in the market, a procedure of their sale for separate time periods or by separate types of production.

The limited offer of these goods in the Russian market took place in connection with the tough export-oriented policy which was carried out by participants of Pollock cartel.

The main proofs on the case were the materials received during joint with the law enforcement authorities of unscheduled inspections (minutes of meetings of the Association, correspondence among its members and their agreements on volumes of catch of pollock and products of pollock processing).

Consideration of the case and decisions of the Governmental Commission on Control of Foreign Investments led to disintegration of the cartel and the largest redivision of the Russian market of production of bioresources.

Case papers were sent to the law enforcement authorities, the RF Tax Service and the RF Customs Service.

3.3.2 Policy in the field of ex-officio investigations of cartels

There is no special policy defining and/or stimulating carrying out ex-officio investigations of cartels in Russia.

Any facts confirming the existence of a cartel, it doesn't matter what a source they are received from, are subject to inspection. An application for a leniency program cannot be considered only if was probably received from an anonymous.

There is no special procedure for carrying out ex-officio investigation of cartels. Procedures of initiation and consideration of cartel cases are regulated by the FAS Russia's "Common Administrative Regulation on Execution of the State Function on Initiation and Consideration of Cases on Violations of the Antimonopoly Law of the Russian Federation" approved by the FAS Russia's bylaw of May 25, 2012 No. 339 (further – Regulation).

At the same time, taking into account that fact that the structure of the Central office of the FAS Russia includes the Anticartel Division, the Regulation contains some features of internal procedures and registration of necessary documents.

4. Screens for officials for detect bid-riggings

In the Russian Federation the majority of public procurements is carried out by open electronic auctions on special electronic floors.

The key document regulating the relations connected with placement of orders for deliveries of goods, performance of work, rendering services for the state, municipal needs, needs of budgetary establishments is the Federal law of July 21, 2005 No. 94-FZ "On placement of orders for deliveries of goods, performance of work, rendering services for the state and municipal needs". Control of the law observance is exercised by Federal Antimonopoly Service.

Moreover, the general principles and basic requirements for carrying out procurements, works and services for public corporations, state-owned enterprises, and subjects of natural monopolies in the Russian Federation are stated in the Federal Law of July 18, 2011 № 223-FZ " On procurement of goods , works, services by certain types of legal entities " (hereinafter - the Law 223- FZ). Monitoring compliance with this law is exercised by the Federal Antimonopoly Service.

The objectives of the Law No.94-FZ and the Law No. 223- FZ are the efficient use of budgetary and off-budgetary resources, development of fair competition, ensuring openness and transparency of placement of orders, preventing corruption and other abuses in placement of orders. Monitoring compliance with these laws is exercised by the Federal Antimonopoly Service.

In addition, the law "On Protection of Competition" establishes antitrust requirements to auctions specifying the prohibition on actions that can lead to prevention, restriction or elimination of competition, including coordination by organizers of the auction of activities of their members, creation of privileged conditions for participants of an auction, violation of the procedure for determination of the winner of the auction etc.

All announcement on public orders should be placed on the single state website that provides maximum openness and on special electronic floors. The state website uses special software that controls the correct entering of the necessary information and data to conduct auctions, for example, it is impossible to use Latin characters instead Russian, as well as it is impossible to enter the information required for participation.

The FAS Russia considers as "red flags" to identify bid-riggings the following:

- refusal of bidders to compete;
- minimum reduction of the initial maximum price of the contract;
- submission of offers for the auction from one IP-address or IP- addresses belonging to the same person;
- "ram" scheme: during the first minutes of an auction two participants reduce the price to such a level that it is economically unprofitable for fair participants of the auction to bargain further (from 25 to 70% from the initial (maximum) price of the contract). Thereafter, the third participant of the agreement, being convinced that other participants of the auction don't show

interest to this lot, in the last seconds of the auction offers a price slightly below than the initial (maximum) price of the contract or slightly lower than the last offer of the fair participant.

Subsequently, during consideration of the second parts of the arrived applications it becomes clear that two participants of the agreement who have offered minimum prices, at the end of reception of applications in the demands acceptance termination (before the date an open electronic auction takes place) withdraw necessary documents from private offices or these participants of the agreement refuse to conclude a state contract after they are recognized as winners. Thus, they ensure a victory in auction to the third participant of the agreement that has offered the highest possible price.

The FAS Russia's powers¹ include control and supervision of observance by customers, authorized bodies, specialized organizations, operators of electronic floors, auction committees of the legislation of the Russian Federation and other regulations of the Russian Federation belongs on placement of orders.

Nowadays the FAS Russia's Guidelines on Investigation of Cartels are being developed.

5. FAS Russia's near-term prospective in sphere of combating cartels

One of the main tasks of FAS Russia at the present stage is to provide reliable protection of national economy from cartels and other anticompetitive agreements.

Taking into account this task, a key document in the field of a competition policy - "Strategy of Development of Antimonopoly Regulation in the Russian Federation for 2013-2024" was approved by the Presidium of Board of FAS Russia in February, 2013 that provides for the following measures defining the key directions of improvement of the system of combating cartels in Russia:

- formation in association with the Supreme Court of the Russian Federation and the Ministry of Internal Affairs of the Russian Federation of a mechanism for effective investigation of agreements (cartels) restricting competition;
- adding changes to the legislation on investigation and search operations regarding a new cause allowing to carry out investigation and search operations upon request of the antimonopoly authority in investigating cartels, as well as inclusion of the antimonopoly authorities as recipients of results of investigation and search operations;
- organization of monitoring for activity of territorial bodies in the field of combating cartels;
- improvement of quality of judicial remedies of FAS Russia's decisions on cartel cases;
- organization of a system of improvement of professional skills on topical problems of combating cartels;
- organizing-and-staff and material-and-technical support of activity of antimonopoly authorities on combating cartels.

¹ The FAS Russia is a federal executive body authorized to exercise control in the sphere of placement of orders for deliveries of goods, performance of work, rendering services for federal state needs, except for control powers in the sphere of placement of orders for deliveries of goods, performance of work, rendering services for state defensive orders, as well as in the sphere of placement of orders for deliveries of goods, performance of work, rendering services for the federal state needs which are not related to the state defensive orders but information of which is a state secret.

SWEDEN

1. Proactive and Reactive Detection Measures

The Swedish Competition Authority (SCA) uses a combination of proactive and reactive detection tools. Reactive detection through measures such as leniency and/or complaints and tip-offs is of course crucial. For the SCA, as for competition authorities in many other small economies, it is a challenge to make our leniency system work effectively. Proactive detection tools are very important since an effective leniency program presupposes a certain degree of fear of being detected. Consequently, proactive detection can increase deterrence directly, as well as contribute to increasing the effectiveness of reactive detection tools.

The decision to divert more resources from reactive to proactive detection or vice versa is influenced by the number of leniency applications and the quality of tip-offs received by the Competition Authority. Leniency cases will generally receive the highest priority, but for the SCA as for all authorities who do not normally receive a large number of leniency applications it is crucial not to be entirely dependent on the incentives of third parties. The optimal cartel detection policy should, in the SCA's opinion, always consist of a combination of both reactive and proactive methods.

The decision as to how to divert resources is also influenced by the authority's workload at a given time. If the authority already has a large number of ongoing high-quality cartel investigations this is likely to affect the willingness to devote more resources to proactive detection. The SCA however always strives to keep up to date with the development of new cartel detection methods and at most times has at least one ongoing case involving proactive methods.

1.1 *The SCA's policy towards ex-officio cartel investigations*

Ex-officio enforcement is important for the SCA, but we do not prioritize ex-officio investigations differently to cases initiated otherwise. The decision to prioritize a case is based on our prioritization policy, which is public and can be found at the SCA's website,¹ and depends on the gravity of the alleged infringement, the need to establish new precedent to provide guidance and whether the SCA is the best-placed authority to take action regarding the matter or whether it would be more suitable for it to be dealt with by applying a different system of rules.

2. Cartel Screens

2.1 *The SCA's experience of cartel screening methods*

The SCA has used different types of behavioral cartel screens on several different markets. The markets under scrutiny have in most cases been identified based on tip-offs which, in their own right, have not been sufficient to launch a formal investigation. Such tip-offs are often received from procuring entities or procurement officials, but also from other informants. A number of vague tip-offs that a market is not functioning well could together form a base for initiating a pre-study involving cartel screening. The

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http://www.konkurrensverket.se/upload/Filer/ENG/About/Prioriteringspolicy_eng.pdf

market chosen for screening should also be a type of market where collusion is likely to occur, and one which lends itself to empirical analysis (for instance because public tender data is available to the authority). The following are examples of types of analysis used in different cases.

2.1.1 *Screening of winning bids*

The SCA had for some time had suspicions that the market for funerals and transportation of deceased persons was malfunctioning. After a tip-off was received from a procurement official we chose to perform a screening of all public tenders carried out on this market during a two-year period. In the screening we looked only at winning bids. The analysis revealed that there were several tenders where two or more firms had submitted exactly the same prices (and consequently had all been awarded contracts). We concluded that it was highly unlikely that the different firms would have independently submitted exactly the same prices. Because the bid-rigging scheme in this case was not particularly elaborate there was no need to use more advanced economic methods. On the basis of the screening results and the tip-off, the SCA successfully applied to Stockholm City Court for a warrant to conduct a dawn-raid. The investigation ultimately led to the imposition of administrative fines on three companies.

2.1.2 *Analysis of deviation from optimal bids²*

Every company participating in a tender should strive to place the optimal bid in consideration of its own costs. In a tender involving serious (non-colluding) tenderers, the factual bids should differ very little from the optimal bid. This type of analysis is based on the presumption that the tender involves goods or services which can easily be compared and where tenderers' costs can be assumed to be similar. That is, homogenous products and identical, or else low or insignificant, transportation costs. An example of such a product could be asphalt, which, when specified in a procurement contract, is completely homogenous and is usually produced close to the point of delivery. If there is a cartel on such a market, the companies involved may display different bidding strategies where in fact they should normally have very similar strategies. Using a regression analysis it is possible to estimate each company's optimal bid. On a collusion-free market, deviations from that optimal bid should be random and not follow a particular pattern. If two companies have a cartel, however, the deviation from the optimal bid – the residuals in the calculation - will form a non-random pattern. The deviation that Company X has from its optimal bid will in a cartel depend on the deviation that Company Y has from its optimal bid.

In the event that a non-random pattern emerges, the second part of the analysis investigates that pattern more closely. If all companies have placed their bids independently of each other and calculated their optimal bids only taking into account their own costs, there should be no connection between their deviations. If a pattern emerges it might be either positive or negative. A positive connection is when the bids from two companies have the same degree of deviation from their optimal bids in several tenders. On the other hand, if a negative connection is found, that is if a company has a large deviation when its competitor has a small deviation and that pattern emerges in several tenders, this might indicate cartel behavior. The companies may in that case jointly have decided which company should win and taken turns submitting bids that are calculated based on their costs and bids not correlated with their cost function, i.e. phantom bids. The factor which will decide whether or not there is a connection is the level of significance, i.e. the amount of evidence required to accept that an event is unlikely to have arisen by chance. What an economist looking for cartels wants to find in this type of analysis is a negative connection with a low level of significance. If this pattern can be observed then a behavior which is typical for cartel participants has been found. The winning bids are set very close to the optimal bids. The losing bids are much higher than the optimal bid.

² Bajari & Ye (2003).

The SCA has tested this type of analysis only once and so far has not used the information to apply for a warrant. The reason for this is that the results so far have not been conclusive enough. The case is still under investigation and we will in the coming months continue and broaden the analysis to involve more tenders.

2.1.3 Analysis of percentage differences between winning and losing bids

This method has also been applied once by the SCA. The origin of the case was information received by the SCA that there was a large cartel between construction companies in the north of Sweden. The informant claimed that the modus operandi of the cartel was to set the price of the winning bid as a starting point and then decide on the percentages by which each losing bid would differ from that bid. The SCA's analysis involved looking at the first decimal place of the percentage difference between bids.

If bids are calculated independently of each other and the differences between bids on average are large enough (several percentage points), there should be no pattern identifiable in the first decimal place (e.g. 7.51 %) of the percentage differences between the winning bid and each losing bid, respectively. Each number, 0-9, should be equally prevalent when percentage differences are rounded off to one decimal place. If a pattern is repeated in a number of tenders, especially if you can see the pattern between more than two key players and compare their bidding pattern to other companies' patterns (companies which are not suspected of being part of the cartel) that pattern is likely to be the result of cartel behavior. The SCA's analysis showed that the probability that a pattern such as that identified in the case at hand could emerge at random, was only about 1 in 3000 if bids were submitted independently (i.e. in the absence of collusion).

Based on this information and the information from the informant, we applied and received permission to conduct dawn raids at the sites of the suspected cartelists. During the first half of 2012 we analyzed the material from the dawn raids and interviewed officials from the suspected companies. However, neither the material from the dawn raids nor the results of the interviews produced enough evidence to take the case to court. Consequently, the investigation was closed.

2.1.4 Analysis of patterns in submitted prices

This analysis involved prices submitted by three different companies in tenders. An informant contacted the SCA and claimed that there was a cartel on the market for moving services. To verify the veracity of that allegation we searched for patterns in the prices submitted by the three companies in tenders. The analysis revealed that some companies submitted bids that would have resembled corporate strategic bidding had the companies belonged to the same group. Corporate strategic bidding is a term used for the case when several bidders from the same group coordinate their bidding in a tender in order to maximize the chances of success. All of the bidders involved submit tenders with very favorable terms, for example, a price of zero dollars, in one separate category, but less favorable conditions in other categories. The favorable terms in one category leads to all of the bidders receiving a good average score and hence being awarded the framework contract. When the same pattern is observed by independent firms, it may signal that the companies involved have an anticompetitive agreement.

Based on the results of the analysis and the information from the informant we applied for a warrant. Dawn raids were carried out in April 2013 and the case is still under investigation.

2.2 Benefit and costs of implementing cartel screening methods

It is the SCA's opinion that it is possible to find cartels using screening and economic analysis. Although we see great potential in these methods, they normally need a "trigger" – for example that an informant has provided some information – in order to be useful on an operational level. The trigger is needed partly to choose the market to analyze and partly because the economic methods in many cases do

not give a sufficiently conclusive indication of collusion so that they alone can meet the legal requirements to warrant a dawn raid. Economic detection methods offer an alternative when there are indications of a cartel but conventional methods for investigating, for whatever reason, have not given any results. They may in such cases offer an opportunity to progress with an investigation that otherwise would have halted. Hence, we believe that the benefits of using cartel screens justify the costs. In fact, we will in September 2013 devote more resources to developing our cartel detection methods. In a project devoted solely to cartel detection we will analyze a large data base consisting of information from public tenders. The analysis will focus on markets where we have seen competition problems in the past, but where we so far have not received leniency applications or tip-offs detailed enough to initiate investigations.

3. Public Procurement

Besides its task to safeguard and increase competition, the SCA is also the supervisory body for public procurement. One important synergy which arises from combining these two powers in one authority is the bid-rigging information we receive through our procurement work.

3.1 *The SCA's guidance for procurement officials*

The SCA provides different types of guidance for procurement officials. We frequently give presentations or arrange seminars for public procurement officials with the purpose of teaching them how to recognize signs of bid-rigging. In 2009 we published a checklist for procurers, which can be used for private companies as well as public entities. Together with the checklist we also produced a brochure entitled "Honesty pays". The purpose of the brochure is to increase procurers' awareness that they can actually conduct better business by using the checklist and by being observant. When creating the checklist we were inspired by the OECD checklist and also by checklists from several other NCAs all over the world. The checklist and the brochure can be found at the SCA's website³ and have also been handed out to procurement officials all over Sweden.

The checklist sets out twelve signs which suggest that companies may have formed a bid-rigging cartel:

- Suspiciously high prices?

If all or most of the tenders are significantly higher than in previous tender procedures, higher than the companies' list prices or higher than a reasonable estimate of their costs, some companies may have submitted so-called courtesy tenders. This practice, also known as "cover bidding", means that companies submit tenders for the sake of appearance only, in the knowledge that another company will submit a more competitive tender.

- Prices that are suspiciously inconsistent?

A company submitting prices that are significantly higher in some tendering procedures than in others, without any obvious reason such as differences in costs, may suggest it is involved in a bid-rigging cartel. Companies may in this case have agreed on who is to win the contract, for example for a particular product or customer, or within a certain area.

- Suspiciously big differences in prices?

If the difference between the winning bid and the other bids is inexplicably large, it may suggest that some companies in the sector have formed a bid-rigging cartel to keep price levels up. The winning bid may have been submitted by a company that is not a member of this cartel and therefore submitted a bid significantly lower than those from the companies in the cartel.

³ http://www.konkurrensverket.se/upload/Filer/ENG/Publications/Honesty_pays.pdf and <http://www.konkurrensverket.se/upload/Filer/ENG/Publications/Checklist.pdf>

- Suspiciously similar prices?

If several companies have submitted bids with identical or suspiciously similar prices, it may indicate that they have agreed to share the contract.

- Suspected boycott?

If no bids are received, there may be a coordinated boycott with the purpose of influencing the conditions of the contract. This suggests that the companies have agreed to abstain from submitting bids. The aim of a coordinated boycott may, for example, be to divide a certain market between the members of a cartel.

- Suspiciously few bids?

If unexpectedly few companies submitted bids, it may indicate the existence of a market-sharing cartel. The purpose of such a cartel is to avoid competition within, for example, certain geographic areas. In such cases, companies abstain from submitting bids within one area so that a certain other cartel member can win the contract.

- Suspiciously similar bids?

If bids refer to industry agreements that affect the price, the companies may have agreed to apply, for example, common price lists, delayed payment fees or other sales conditions for the sector. Such agreements are generally illegal.

- Suspicious patterns?

If the same company wins the contract every time it is renewed, there may be a market sharing agreement between the companies in the market. Contracting authorities should be aware of patterns, such as companies always submitting the lowest bid in a certain geographic area or with a certain contracting authority. Another way in which companies illegally divide the market between themselves is when they take turns to submit the lowest bid.

- Suspicious subcontracting arrangements?

If the company that won the contract assigns or subcontracts part of the contract to a competitor that submitted a higher bid in the same procedure, this may suggest a bid-rigging cartel. In this case, the companies may have agreed that the winner will compensate its competitors by engaging them as subcontractors.

- Suspiciously careless tenders?

If the winning bid is the only one that has been compiled in a thorough and detailed way, while the others have been drawn up more carelessly, it may suggest a bid-rigging cartel. In this case, only the winning company has devoted resources to submitting a thorough bid.

- Suspicious wording?

If there are similar oddities in several different bids or in the questions that the companies ask the contracting authority, it may suggest that the companies are colluding. Contracting authorities should look out for identical wording, identical errors in calculations or the same notepaper and standard forms.

- Suspected joint bids?

A joint bid submitted by more companies than necessary to perform the assignment may be illegal.

3.2 *Interactive guidance*

The SCA markets the checklist not only towards procurement officials, but also in our contacts with trade organisations. From representatives of trade organisations and companies who participate in tenders, as well as from public procurers, we have over the years received many questions about what types of cooperation between companies is actually allowed. Some cases investigated by the SCA also indicate that companies are not always totally aware that their cooperation could be illegal. Since it is part of the SCA's tasks to prevent competition problems and inform the public we also decided to publish guidance in this respect. The guidance was published in April 2013. It is a web-based, interactive tool which can be found on the SCA's website. It can be used by both procurers and companies and focuses on the questions which are most frequently asked – from the specific "Can we cooperate in this particular tender" to "What are the forms of cooperation permitted" and "When am I allowed to use a competitor as subcontractor?". The user is also informed of what the consequences of illegal cooperation might be.

Raised awareness among companies will hopefully prevent at least some cartels from being formed. Since the interactive guidance can also be used by procurers it aims at helping them identify what types of cooperation in tenders might be illegal. Consequently, the combination of the checklist and the interactive guidance is hoped to increase the quality and the number of tip-offs received by the Competition Authority. Even though not every tip-off is detailed enough to let us carry out a dawn-raid, they all add pieces to the puzzle and show us on which markets problems seem to occur. This helps us in judging where we may have the greatest chance of being successful in the use of screening and economic analysis of tenders to detect cartels. Hence, in the SCA's opinion an effective combination of proactive and reactive detection methods needs to involve guidance for procurement officials.

3.3 *Results of the SCA's cooperation with public procurement bodies*

The SCA has launched several successful investigations following cooperation with procurement bodies. An analysis of cartel cases initiated after 1 January 2007 and in which the SCA has conducted dawn raids shows that more than half of the cases were based wholly or partially on tip-offs from procurers. For other cartel cases we have no statistics in that respect, but can conclude that procurers are one of the most important categories of informants for the Competition Authority.

The statistics gives a hint of the importance of the SCA's cooperation with procurement bodies, but the truth is that the benefits of our outreach activities towards procurers cannot be fully estimated. In a questionnaire sent out to a large number of procurement bodies in 2013, 21 % of procurers stated that they, when they have seen signs of cartel activity in their tenders, have chosen to contact the suspected companies and not the Competition Authority. Hence, we do not know if there indeed was a cartel, nor if the cartel has continued its bid-rigging activity after being contacted by the procurer. Additionally, it is our expectation that our training of procurers contributes to increasing their awareness of how to make their tenders less prone to bid-rigging and, consequently, preventing cartels from being formed.

CHINESE TAIPEI

1. Introduction

This report is divided into three parts. The first part shows the general status of ex officio cartel investigations in Chinese Taipei in recent years and the rise in the number of cartels, in which the actors were sanctioned upon such ex officio cartel investigations. The second part interprets the evaluation indicators from the aspect of industrial structures. The third part of the report explains the FTC's ex officio investigation mechanism against cartels.

2. The FTC's Ex Officio Cartel Investigations and Numbers of Sanctioned Cartel Cases

There are two sources of cartel cases handled by the FTC, one of which is based on complaints filed by consumers or business groups; while the other refers to the ex officio investigations led by the FTC based upon the long-term monitoring of the industries and price changes. Statistical data show that, up until December 2012, there had been 747 complaints of concerted actions received by the FTC, of which 314 were handled by initiative investigations conducted by the FTC. Of the cases investigated, 179 cases were subject to sanction, of which 112 (62.6% of the total concerted actions cases sanctioned) originated from complaints by the public or business groups, while 67 (37.4% of the total concerted actions cases sanctioned) originated from the FTC's ex officio investigations.

In view of the time series, the highest volume of cartel cases sanctioned occurred in 2000 (21 cases) and the second highest occurred in 2012 (18 cases). Out of the 18 cases sanctioned in 2012, 14 cases originated from initiative investigations conducted by the FTC and only 4 originated from evidence submitted by the complainants. There is a growing trend in the cases of cartel detection investigated for them that originated based on evidence of illegal activities received.

Moreover, in view of the number of enterprises sanctioned per case, there were 124 cases in aggregate where only 5 or fewer enterprises were sanctioned in one single case, which represents 69.27% of the total cartel cases sanctioned by the FTC. In terms of the main industry classification of each sanctioned enterprise¹, most of the enterprises sanctioned were in the industry of professional membership organizations (46 cases, representing 25.7% of total cartel cases sanctioned by the FTC). The industries that followed and their respective percentages are: retail trade (15 cases), 8.4%; electricity and gas supply (12 cases), 6.7%; the manufacture of other non-metallic mineral products (11 cases), 6.1%; the manufacture of food products (8 cases), 4.5%; programming and broadcasting activities and legal and accounting activities (7 cases each), 3.9% each; the manufacture of computers, electronic and optical products and specialized construction activities (6 cases each), 3.4% each; waste collection, disposing and recycling activities; and wholesale trade and water transportation (5 cases each), 2.8% each. Based on the identity of the sanctioned parties, 105 cases were companies, representing 58.66% of the concerted action

¹ The sanctioned enterprises consisted of 42 industries. The term "main industry" means any industry under which 5 (inclusive) or more cases have been subject to sanctions. The industry classification is based on the "Standard Industrial Classification" published by the Directorate-General of Budget, Accounting and Statistics, Executive Yuan.

sanctions decisions; 64 cases were businesses and freelance organizations, representing 35.75%; 5 cases were general public; 4 cases were foreign business units; and 1 case was a cooperative association.

From the statistics above, several elements of the FTC's cartel enforcement cases can be concluded as follows:

- Recent cartel cases sanctioned were mainly discovered upon the observation of the industrial characteristics and ex officio investigations conducted by the antitrust authority. Cases discovered based on specific evidence provided by the complainants were relatively low in number.
- Cartel cases where 5 or fewer enterprises were sanctioned in an individual case constituted more than half of the entire cartel cases sanctioned by the FTC. The most sanctioned target was companies, of which 30% were businesses and freelance organizations. The purpose of the establishment of industry associations or trade unions is to maintain the common interest of their members; however, it can become the accelerator of concerted actions if it restricts competition among the members.
- The main industries to which the violators belong are: activities of professional membership organizations and trade unions, electricity and gas supply, the manufacture of other non-metallic mineral products, and the manufacture of food products. The homogeneity of the products or services involved is becoming increasingly high.

3. The Structural Approach of the FTC's Detection against Cartels

The cartels sanctioned in Chinese Taipei involve mainly 12 industries including the activities of professional membership organizations, trade unions and retail trade, etc. The source of such information is based on the 2011 Industry, Commerce and Service Census completed by the Directorate-General of Budget, Accounting and Statistics, Executive Yuan and the industry database of the FTC. Such reports do not cover market information regarding statistics of the sales amount of professional membership organizations. Therefore, the observation was conducted based on six major market structural indicators of the retail trade and other ten industries, namely, the industry scale, concentration, entry barriers, operational efficiency, innovation and industry growth trends.

Analysis Results: Factors that are conducive to collusion include small industry scale, high concentration, high entry barriers, high operational efficiency, low innovation and high industry growth trends. These factors are conducive to cartels. The results are compiled and shown in Table 1 (the symbol "●" indicates that the industry possesses the factors that are conducive to cartels). Most of the main industries subject to the cartel cases sanctioned by the FTC possess at least 3 or more market structural indicators that are conducive to cartels.

Table 1 Market Structure Indicators Conducive to Cartels

Industry Classification	Small Scale ²	High Concentration ³	High Entry Barriers ⁴	High Operational Efficiency ⁵	Low Innovation ⁶	High Industry Growth Trends ⁷
Manufacture of Food Products				•	•	•
Manufacture of Other Non-metallic Mineral Products			•	•	•	•
Manufacture of Computers, Electronic and Optical Products			•	•		•
Electricity and Gas Supply	•	•	•		•	•
Specialized Construction Activities				•	•	•
Waste Collection, Disposing and Recycling Activities				•	•	•
Wholesale Trade			•			
Retail Trade			•		•	
Water Transportation	•		•		•	
Programming and Broadcasting Activities	•				•	
Legal and Accounting Activities		•		•	•	

² Small scale shall refer to the situation where the industry of the sanctioned enterprise consists of less than 1,000 enterprises in 2011.

³ High concentration shall refer to the situation where the CR4 value of the industry of the sanctioned enterprise is more than 50 and the HHI value is greater than 1500.

⁴ High entry barriers shall refer to the situation where the entry rate of the industry of the sanctioned enterprise is lower than the average entry rate of the overall enterprises of manufacturing or service industry in 2011.

⁵ High operational efficiency shall mean that the profit rate of the industry of the sanctioned enterprise is higher than the average profit rate of the overall manufacturing industry in 2011.

⁶ Low innovation shall refer to the situation where the ratio of the research and development expenditure to the total production of the industry of the sanctioned enterprise is lower than the average ratio of the research and development expenditure to the total production of the overall manufacturing industry in 2011.

⁷ High industry growth trends shall refer to the situation where the total income of the industry of the sanctioned enterprise is higher than the average income growth rate of the overall manufacturing or service industry.

Based on the FTC's analysis of the cartel cases sanctioned, the FTC has referred to several features related to the industrial structure of the violating enterprises. Such features can help us select certain industries for the purposes of supervision and control to prevent the forming of cartels and the damage to market competition caused thereby. The structural indicators of cartel detection, on the other hand, include the number of enterprises, entry barriers, constraints on available production capacity and excessive production capacity, changes in market demand, the frequency of interaction and price changes, market transparency, symmetry of costs, quality or product differentiation, and buyer power, etc. The goal of the analysis is to determine whether there exists any factor that could help form or stabilize cartels under each indicator. Structural indicators are used to keep the enforcement authority on a high alert in respect of any collusive practice that will be forming.

4. The FTC's Detection Mechanism against Cartels

The theory of antitrust economics indicates that in order to reach an agreement among the enterprises in respect of concerted price-fixing, the enterprises will consider the cost of reaching such an agreement (by adjusting the cost of mutual interests) and economic terms. The ex officio detection tools against cartels include the analysis of observable economic data and enterprise behavioral detection, systematic market signal detection, etc. The following is the FTC's recent experience in the sanction cases discovered through its detection mechanism.

4.1 *Observation of Economic Data*

4.1.1 *Demand Factors:*

Changes in demand mainly refer to demand growth, changes in demand cycles, and fluctuations in demand. When a product is in the stage of growing demand, a concerted practice is easier to maintain. This is because the implementation of an agreement regarding a concerted action is more beneficial than acting against it. Furthermore, if the fluctuations in demand become overly frequent, it will increase the difficulty for the enterprises in a concerted action to identify the cause of the price change and discover any betrayal behavior and therefore increase the instability of the concerted action.

4.1.2 *Supply Factors*

Cost Differences: When the cost is asymmetric, it is hard for the enterprises to reach an agreement regarding a fixed price. Normally, enterprises with lower costs will insist on setting a lower price, while enterprises with higher costs will insist otherwise. Such a situation will increase the difficulty for the enterprises to reach an agreement on the price.

Product Differentiation: In the case of product differentiation, a concerted action is made not only to determine the price or production yield, but also to negotiate with non-price factors. As a result, the higher the product differentiation is, the harder the negotiation can be. A concerted action under such circumstances is more difficult to maintain.

Production Capacity: When an enterprise's production capacity is excessive or has large inventories, it will have an incentive to reach an agreement on a concerted action in order to increase the production capacity utilization rate or use up the inventories.

Technological Innovation: Technological innovation will bring varieties of products to the market and therefore lower the possibility of concerted actions. In respect of markets with more active technological innovation, the introduction of new products and new technologies will cause changes in the product demand and supply to take place more rapidly and it will become harder to predict and therefore lower the incentive for enterprises to engage in a concerted action.

4.1.3 *Economic Terms*

If there is higher product homogeneity, a lower number of enterprises, higher market concentration, a lower elasticity of product demand, and higher entry barriers, enterprises will reach an agreement on restrictive competition more easily as the cost of paying to maintain the unlawful effect will be lower. Thus a cartel is relatively easier to form. Secondly, the transparency of market transactions and frequent interactions among the enterprises will also help the cartel to be maintained.

4.1.4 *Detection of Systematic Market Signals*

Facilitating practices in an oligopolistic market refer to those practices that tend to make it easier for enterprises to reach agreements by adopting various means to eliminate the instability of the strategies among the enterprises. The types of the facilitating practices often seen in the FTC's cases relate to the exchange of information and prices, the evidence of which is as follows:

- 1) **Information Exchange:** Where any person concurrently serves as the shareholder and the managerial officer of an enterprise or an employee hired was previously from a competitor; and where enterprises disclose price information to each other on a public or private occasion or call for a halt to low price competition.
- 2) **Pricing Systems:** Where price information is exchanged through a price adjustment announcement; where a most favored provision is in place for the enterprises of the same industry to establish a model not to compete on prices; where the enterprises publicly or in advance relay the price adjustment information to each other; and where the enterprises know the price adjustment cycles of the others. For example, in the sanctioned cases of the FTC that involved oil products, industrial paper, milk, and coffee, etc., the enterprises sanctioned all used the media to exchange the price adjustment information and reach a mutual understanding regarding the price increase.

The FTC collects and organizes long-term market information (including the media) both before and after a price adjustment to control the timing when such important price adjustment information is released to the market by the key enterprise and use it as the evidence for the facts to be proved.

5. **FTC's Detection of Enterprise Behaviors**

5.1 *Case example1: Ready-mixed Concrete case*

Ready-mixed concrete enterprises in the Chiayi area were sanctioned by the Fair Trade Commission Decision at the 757th Commissioners' Meeting on May 11, 2006 for engaging in a concerted price increase.

Market structure conducive to the formation of a cartel: The characteristics of ready-mixed concrete are the simple technology, high product homogeneity, inability to stock inventory, and complete substitution products. The selling market area of ready-mixed concrete is limited to a one-hour hauling radius. The geographic market is regional and it has entry barriers.

Detection of enterprise behaviors: From October 2004 to January 2005, the price in the Chiayi area for each cubic meter of ready-mixed concrete increased by an additional NT\$150 to NT\$200 for 3,000 pounds of each ready-mixed concrete enterprise. The price increase by each ready-mixed concrete enterprise was highly consistent and concurrent with the price increases conducted by the other enterprises. During such a period, the costs of the enterprises did not experience an obvious increase, and, therefore, the price was inconsistent with the cost. Market demand declined and production capacity idled, while the price continued to rise. Downstream construction and civil engineering enterprises reported that the

upstream enterprises had engaged in a concerted price increase. The prices quoted by the upstream enterprises all came back the same during the same period. However, the ready-mixed concrete enterprises used lower prices among each other to allocate the materials.

Ready-mixed concrete enterprises stopped initiating ancillary services starting in October and November 2004. With the economic recession and decrease in construction projects, as well as the vehicle control measures implemented by the competent authority in June 2004, the enterprises subjectively had the incentive and motive not to compete with each other based on prices in order to avoid the impact on their profits.

5.2 *Case example 2: Industrial paper case*

Three major industrial paper enterprises were sanctioned by the Fair Trade Commission Decision at the 962nd Commissioners' Meeting on April 14, 2010 for engaging in a concerted price increase.

Market structure conducive to the formation of a cartel: the three enterprises manufacturing first-level industrial paper had a market share of 90%. The market was highly concentrated (with HHI as high as 3700). The fundamental facilities, such as production capacity and factories, caused high entry barriers. Moreover, with the lead time of importers, it was not likely that there would be newcomers (whether in manufacturing or importing) that would be engaged in price competition at the time.

Detection of enterprise behaviors: the three enterprises had different cost pressures, operating strategies, and proportions for self-use, but they all raised their prices at the same time by a similar proportion. The FTC also found price deviations when comparing the price increases in relation to the historical price adjustments, the highest point of the prices, the frequency of price adjustments and international prices. The enterprises periodically discussed paper price trends and technological developments through public meetings and gatherings arranged by the association or frequently interacted with each other through golf, karaoke, and dining activities in private. The enterprises had the same price quotation and settlement system. They would use the listed price for the current month as a price quotation and issue invoices for settlement. At the end of the month, the enterprises would calculate the actual prices by using discounts.

The domestic market demand for industrial paper was high; however, the prices continued to rise. Upon reviewing the export information of the enterprises, they still used lower prices to export their goods and caused a market signal suggesting there was a supply shortage. The upstream and downstream enterprises were supposed to depend on each other for perpetual operations, but the downstream buyers suddenly surrounded the upstream paper suppliers in order to protest.

From the experiences gained based on the two cases mentioned above, the indicators used by the FTC to detect any enterprise behavior which might possibly involve collusion are (see Table 2):

1) Price Marker:

- a) These two cases of price uniformity were passed on to the counterparts simultaneously.
- b) These two cases give rise to unexplainable price deviations and high correlations after the price adjustments.
- c) The ancillary services in connection with the prices are identical. For example, the ready-mixed concrete enterprises canceled initiative price quotation services; the industrial paper prices included shipping costs and the enterprises used the same quotation and settlement mechanism.

2) Quantity Marker:

- a) Market Share: The market is highly stable. Regardless of the increase or decrease in demand, the market share of each enterprise remains the same with similar ranking and proportion.
- b) Changes in Demand: The enterprises still have the same market shares, even with any unforeseen shock increase in demand. For example, the third enterprise in the industrial paper market with excessive production capacity would rather export at lower prices than sell to the domestic market.
- c) Volume Flow among Enterprises: This includes the transfer of materials by ready-mixed concrete enterprises among themselves, or the proportion of the self-use check in the buy-back scheme of the enterprises. Such factors may be used to determine whether the enterprises have an agreement to maintain the market shares.
- d) Production Capacity: The production capacity of each enterprise is one of the factors that can affect whether the enterprise will betray a cartel. Asymmetric production capacity, in particular, can maintain the stability of a cartel. For example, if the industrial paper enterprises that are respectively ranked second and third were to betray the cartel, their production capacity would not be sufficient to supply the entire market demand and might be countered by the enterprise ranked in first place with its massive production capacity. The excessive production capacity of an enterprise might have a deterrence effect thus enabling the enterprise to caution the other cartel members not to betray the cartel.

3) Other plus factors:

- a) Market entry barriers and the participation of enterprises are also indicators used to evaluate collusion. When the entry barriers are low, the possibility of potential new participating enterprises entering the market will be the factor to counter cartels. In other words, when the entry barriers are high, enterprises will have a better willingness to participate in a cartel.
- b) In regard to traditional industries, enterprises are long-time acquaintances. They are enemies in a competitive relationship as well as friends. A high frequency of interactions exists between these enterprises, regardless of whether through periodic official meetings via an association or gatherings in private. When the prices increase, the frequency of interactions can also raise doubts about concerted actions.
- c) The intensity of buyer complaints is another warning sign for cartels. The unusual outrage among the trading counterparts in the middle and downstream industries in the two cases mentioned above indicated a breakdown in the supposedly harmonious and dependent relationship with the upstream enterprises and also reflected the market dynamics.
- d) The current systems shall be reviewed to see if they can be conducive to collusion, such as the price quotation system and settlement method adopted by the industrial paper enterprises, or whether any enterprise uses a pre-announcement facilitating mechanism in the form of a price increase to release the price information through a prior announcement for the other enterprises in the same industry to learn about the price increase and come to an agreement. In the ready-mixed concrete case, a new regulation was taken and caused the enterprises to anticipate a profit loss and in turn provided a motive for the enterprises to jointly raise their prices.

- e) Cost information is of a confidential nature, especially for enterprises with a higher market share. Due to the economies of scale, such enterprises have lower unit costs and are therefore reluctant to reveal their costs. However, when higher costs occur (such as when the cost of raw materials rises) or when significant benefits can be anticipated in the future, truthful communication will tend to occur. As in the industrial paper case, the possibility of collusion did occur when the prices of raw materials rose, and the FTC immediately proceeded with an ex officio cartel investigation.

Table 2 Index Analysis based on Enterprise Behaviors

	Ready-Mix Concrete Case	Industrial Paper Case
Price marker		
1.price change	Price Uniformity	Price Uniformity
2.price deviation	Obvious	Obvious
3.ancillary service	Price Quoting Services Cancelled	Shipping Cost Included
Quantity marker		
1.market share	Stable	Stable
2.demand	Decrease	Increase
3.supply	Transfer of Materials Among Themselves	Increase in Self-Use
4.capacity	Excessive	Fixed
Plus factor		
1.entry barrier	High	High
2.buyer complaints	Strong	Strong
3.frequency of interaction	Frequent	Frequent
4. facilitating practices	Fixed Volume	Price Quotation and Settlement Systems
5.cost factor	No changes	Increased

Indicators of cartel detection are provided for us to observe the probability and stability of the formation of a cartel. This, however, does not mean that in the case where a cartel does exist the enterprise behaviors will fit in with these indicators. The element of mutual understanding shall still need to be proved through the investigation. Currently, enterprises will try to avoid leaving any “smoking gun” evidence. In order to prevent enterprises from colluding under the table, we evaluate the industry characteristics and market structure first and then employ a long-term detection approach in respect of enterprise behaviors, commodity price and volume changes, as well as market dynamics for a comprehensive thinking.

TURKEY

As in all jurisdictions, fighting cartels is one of the most important priorities in Turkish Competition Authority (The TCA). Since its start of operation in 1997 till 31.12.2012, the TCA investigated a total of 189 cases 146 of which is related with anticompetitive agreements between undertakings. In the relevant period, an administrative fine totaling about TL 865 million (approximately €320 million) was imposed.

During the same period, the Leniency Regulation, which entered into force in 2008, was applied to 4 investigation files. As a result of the investigations in question, four separate undertakings which applied for leniency were either granted total immunity from fines, or a discount was implemented over the fines imposed.

Having briefly given the basic figures about its enforcement, the TCA's main approach to the cartels can be said to be mostly a reactive one. Even though it could be asserted that the Authority does not exclusively relies on reactive policy instruments, in practice the investigations are opened mostly after a complaint or a leniency application.

The article 9 of the Act on the Protection of Competition (the Competition Act) states that "the (Competition) Board, upon informing, complaint or the request of the Ministry or on its own initiative, establishes that articles 4, 6 and 7 of this Act are infringed, it notifies the undertaking or associations of undertakings concerned of the decision encompassing those behavior to be fulfilled or avoided so as to establish competition and maintain the situation before infringement, in accordance with the provisions mentioned in section Four of this Act." This article expresses the ways the TCA takes action and clearly empowers the board to initiate an investigation ex-officio.

Since the leniency provisions in the jurisdiction began to be applied after the necessary legal amendments were made to the Act only since 2008, it is quite an early time to assume that leniency program failed to provide sufficient incentives for self-reporting. The basic reasons for the authority to rely primarily on reactive detection tools is the fact that the establishment of an anticompetitive agreement through conventional means is both practically easy to implement and to justify or defend the case before the courts. Proofs, which are witness testimony, meeting notes, correspondence, obtained through sudden on-the spot inspections or from lenients is generally the main source for the action.

Yet, the TCA also has some initiatives to include the proactive detection methods in its enforcement activities. In 2006, during one of its investigations related with the cement and ready-mix concrete market the Board decided, cement and ready-mix concrete producers would provide information their monthly capacity, production and sales figures quarterly¹. The decision signifies that the TCA actually has an intention to screen the cement market. The motivation behind the decision is the fact that the cartel enforcement in the cement and ready-mix concrete market was getting extremely challenging as the undertakings have almost always been successful in concealing their activities. As the proactive techniques

¹ Decision dated 19.09.2006 and numbered 06-66/889-M.

seemed to be insufficient for an efficient enforcement for this market, the TCA used its power arising from the Article 14 of the Competition Act².

Secondly, several market studies were done in order to take a snapshot of some sectors which can be regarded either problematic in terms of competition or seen as strategic for a part or whole of the economic structure. Natural gas, road fuel, FMGs, pharmaceuticals, credit cards and red meat are some sectors about which market studies were done. As expected, those reports could be regarded as examples of structural screening as there are no findings related with individual firms.

It can be said that the proactive detection tools could also be used as a supplementary to reactive ones, as in the first one start of an investigation seems to be practically easier. Secondly, for Turkish experience it is quite an early time to reach a conclusion whether the leniency program has proved to a failure in the enforcement. Leniency program started in competition law enforcement with the entry into force of the Leniency Regulation in 2009 following an amendment in the Competition Act empowering the Competition Board to issue such a legal document regarding the terms for immunity from or reduction of fines in case of cooperation, procedures and principles in relation to cooperation.

The last tool used as a proactive tool is screening of press. Besides the personal interest of the case handlers, the relevant unit in the Authority is screening the media and briefs the important news, along with the news related with individual firms or sectors, to the case handlers and the management and the Board.

Regarding the cooperation with procurement officials a protocol was signed between Public Procurement Agency and the TCA in 2009 with a view to establish a continuing relationship and to act jointly so that a fair and sound competition environment in public procurements is established, developed and protected.

Within the context of the protocol, the TCA will be able to Access to the e-procurement system designed by Public Procurement Agency, and the Public Procurement Agency also will have the opportunity to directly Access to the Board decisions that are related with its scope of authority.

² The relevant article states that: *“In carrying out the duties assigned to it by this Act, the Board may request any information it deems necessary from all public institutions and organizations, undertakings and associations of undertakings.*

Officials of these authorities, undertakings and associations of undertakings are obliged to provide the requested information within the period to be determined by the Board.”

The decision was challenged by some undertakings before the Council of State, however the Council of State approved the Board’s decision stating that The Competition Act gives the Competition Board the duty not only to carry out, upon application or on its own initiative, examination, inquiry and investigation about the activities and legal transactions prohibited in this Act; to take the necessary measures for terminating infringements upon establishing that the provisions provided in this Act are infringed, and to impose administrative fines on those responsible for them; but also to ensure the protection of competition by performing the necessary regulations and supervisions to this end.

So, it could be easily stated that the Competition Board’s power to demand the necessary information or data even without the existence an investigation was confirmed.

UKRAINE

1. Concerning manuals on revealing facts of collusion in public procurement.

The Antimonopoly Committee of Ukraine has elaborated a draft guideline "Methodological approaches to investigate anticompetitive concerted actions of the participants of competitive public procurement". This manual should promote to train investigators of bid-rigging in public procurements and to put in order existing knowledge and practical experiences concerning investigations of anticompetitive concerted actions.

At the same time the AMCU aimed to:

- form a holistic vision of the process of investigation, starting from the revealing of signs of possible violations and ending with taking a decision by body of the AMCU;
- Identify logical and psychological bases of proof, correlation between evidences and chain of proofs
- define the role of an investigator in the process of investigation and the main directions of proving a violation of the law as a specific method of enquiry during the investigation of bid-rigging in public procurements.

Talking about trainings for public servants involved in public procurement regarding possible undetected collusions in public procurement procedures it should be noted that at the day such training programs are not held.

Some kind of 'red flags' was determined for detecting facts of bid-rigging.

Detection of violations of competition law in the form of concerted actions of bidders is grounded on the monitoring of public procurement procedures and the identification of the primary signs of concerted action.

Foremost, such monitoring of public procurement is based on the following criteria:

- Price behavior of bidders;
- Non-price behavior of economic entities which are participants as well as potential participants of public procurement procedures
- Behavior of procurers during organization and holding of bids

Each kind of monitoring has a specific set of primary signs of anticompetitive concerted actions of bidders. This list of these signs is not inclusive. However, main signs (main features) of anticompetitive concerted actions that are determined during monitoring processes are as follows.

2. Concerning Monitoring of price behavior of bidders:

Primary signs of anticompetitive concerted actions are:

- Deliberately overcharge offers one of the bidders (this may sign on the existing of so-called cover proposals - applications that are submitted not to win the tender, but to create the illusion of competition);
- Offer price of bid winner is equal to or very similar to the expected value of procurement;
- Prices shown in bidder's offers are significantly higher than their published price lists and prices of their sales of goods (works, services) outside of competitive procurement procedures;
- Same bidder always applies to the lowest price and wins;
- There is a significant gap in prices between the winning offer in the bid and other offers that can not be explained by objective factors;
- A permanent ranging of offers price of certain participants, for example, when the price of two bidders are always close;
- High offer prices are grouped and differ slightly;
- Bidder's offer price of the same or similar product substantially differs in different bids under similar economic conditions;
- Has seen the trend to establish by the bidder a price that are always higher or lower for the same per cent than expecting purchasing price;
- There is a practice that bid prices are plummeting whenever new bidders take part in the bid;
- Offer price of certain product are identical, when normally would be expected a significant price ranking.

3. Concerning Monitoring of non-price behavior of economic entities: participants and potential bid participants

Primary signs of anticompetitive concerted actions are:

- the same bidder wins only in procurements holding by certain procurer but doesn't participate in similar tenders held by other clients;
- a bidder applying for participation in the bid or win the bid had never acted as market player in the market of certain product (works? services) or act in the market rarely;
- there is alternation of the bidders who win the auction . For example, "X" company always win bids concerning some service in the particular location or there is a fixed rotation with other bidders
- bid winner chooses subcontractors among the companies competing with it at bids or buy materials or leases equipment of the other bidders;

- stable group of economic entities participate in bids or a significantly limited group of economic entities win bids;
- economic entities participate in bids often, but never win;
- two or more bidders connected by relations of control, however, takes part in bids as independent economic entities.

4. Concerning Monitoring of the procurer's behavior during organization and holding of bids

Primary signs of anticompetitive concerted actions are:

- the unfounded rejection of the certain bidders offers;
- the procurer introduces alterations to the bid documents during bid organization that are able to restrict access to participation in bids for certain economic entities without objective cause;
- the procurer introduces alterations to the bid documents during bid holding that are able to create an invincible obstacles for participation in bids for certain economic entities without objective circumstances or necessity;
- biased and prejudged evaluation of certain bidder (bidders) offers;
- other facts, affirming that the procurer grants unfounded preferences of any kind to certain economic entities or entities that favoring (it) them comparing with the competitors.;

The detection of abovementioned signs is reasonable cause for initiating of detailed examination of certain procurement and behavior of certain economic entities during different bids which they participated.

Claims of economic entities and reports of governmental bodies concerning signs of competition law violations during bids is one of the most useful sources of information about cartel collusion in public procurement. Subject matter thereof may cause initiation of investigation by the Committee, and in certain circumstances, conduction of unscheduled inspections.

As a rule, proving or disproving of the facts filed in the claim by the way of the carrying out of verification measures (demand for information, implementing of non-public methods of information collection) precedes applying of administrative measures and legal arrangements.

Generally, information obtained from such sources doesn't constitute evidence. However, to refuse of using it would be unreasonable. Such information could be guidance for investigator and may be used for developing of investigation tactics and detecting of sources of evidents while working versions of the events that took place at a case.

5. Concerning public procurement procedures

The AMCU cooperate effectively with public procurement authorities with a view to perform its task on protecting economic competition in the sphere of public procurement.

Most of the investigations conducted by the Antimonopoly Committee of Ukraine are finished by proving by the Antimonopoly Committee of violations and imposing penalties on violators.

As about possible coincidence of interests of competition authority and public authority in the sphere of public procurement, it is necessary to note that during public procurement the procurer and bidders might conclude arrangements. However, such arrangements differ from collusions between bidders. In order to secure a win in the bid by certain economic entity, chosen by procurer before bid, the procurer could take actions aimed at restriction of circle of bidders'. Above mentioned actions could be as limiting of technical requirements according to possibilities of certain bidder, setting terms allowable only for one bidder, conclusion of a contract with a certain bidder without public procurement procedures.

As a general rule, in such cases procurers try to stifle a fact of collusion with bidder and resist conducting of investigation. However, even in such cases, the AMCU have ability to succeed in investigation.

Describing situation on expenditures on educational and outreach programs, it should be noted that joint trainings of the officials of the Antimonopoly Committee of Ukraine are held at appropriate seminars and web conferences. This system of mutual education is effective and does not require significant funding and time.

For outreach programs, the official website of the Antimonopoly Committee of Ukraine regularly highlights reviews of specific cases, in particular relating to violations in the sphere of public procurement.

6. Concerning detecting cartels *ex officio*

6.1 *The Antimonopoly Committee of Ukraine has considered the following cases on commitment of anticompetitive practices:*

1. The Antimonopoly Committee of Ukraine has considered the case on commitment of anticompetitive concerted actions in the market of buckwheat by 9 business entities.

The violation caused unjustified rise in wholesale prices for buckwheat from January to February 2010. Prices were increased up to 47 percent on the average.

Companies tried to justify increasing of their prices for buckwheat by the raise in prices for buckwheat grain. However, during investigation the AMCU has established a fact that at the time of violation defendants had in stocks reserves of buckwheat and buckwheat grain. In other words, for proving the violation the Committee argued that the producers would have to sell buckwheat grain at prices of previous months, as the cost of cereals has not increased

Whereas the analysis of the market situation denied the existence of objective reasons for that price growth dynamics, actions of buckwheat producers were considered as competition law violation through acting similarly in the market of buckwheat, which led to the restriction of competition in the mentioned market. The AMCU imposed penalties of UAH 590,000 in total for mentioned violation. Defendants have admitted their fault and obligated to prevent such actions in future.

2. The Antimonopoly Committee of Ukraine has considered the case on the similarity of price activities of private enterprise "Okko naftoproduct," limited liability company "Continent Nafta Trade" and a limited liability company "Alliance Holding". These companies during December 2010 - the first decade of January 2011 at the same time set excessive prices and close to the same size prices of motor gasoline. However, analysis of the situation in the markets of high motor gasoline denies the existence of objective reasons for such actions. These actions of the companies were found anticompetitive concerted actions. The total fines amounted to 150 million.

3. Also, the Committee conducted an investigation of cartel collusion between 14 wood processing Ukrainian enterprises and the Association "Mebliderevprom."

After hearing, the Committee established the fact of committing violation provided in paragraph 4 of Article 6 § 1 and Article 50 of the Law of Ukraine «On protection of economic competition» through committing concerted practices during special raw wood resource auctions in I - IV quarters of 2011 and distorting auction results.

The AMCU charged 14 wood processing enterprises in committing concerted actions and Association "Mebliderevprom" in assisting in committing concerted actions by business entities. Penalties imposed totaled UAH 419 million 359 thousand 814. Nevertheless, min. penalties (UAH 30,000 each) were imposed on defendants who confessed the fact of violation (3 wood processing enterprises). It should be noted that the investigation of this case involved implementation of active methods such as simultaneous inspections of all entities-defendants in case, so-called 'dawn raids'.

UNITED KINGDOM

1. Introduction

This paper summarises the policy and practice of the United Kingdom's Office of Fair Trading (OFT) when detecting cartels. Traditionally the OFT has relied on applications under its leniency programme for detecting cartels but recently has taken steps to follow a more proactive, intelligence-led approach.

With improved capability and a greater emphasis on intelligence, the risks to cartelists of detection are increasing. In respect of criminal cartel enforcement, an increased volume of investigations as well as amendments to the UK's criminal cartel offence should mean a greater proportion of those investigations result in convictions.

2. Background to cartel enforcement in the UK

In the UK, a cartel is an agreement or concerted practice between businesses that infringes the Chapter I prohibition of the Competition Act 1998 (CA98) or Article 101(1) of the Treaty on the Functioning of the European Union (TFEU) and which involves one of the following activities:

- price fixing (including resale price maintenance)
- bid rigging (collusive tendering)
- the establishment of output restrictions or quotas, and/or
- market sharing or market dividing.

The OFT has the power to impose penalties of up to 10 per cent of a business' worldwide turnover if it finds that a business has engaged in cartel activity.

An individual is guilty of a criminal offence under section 188 of the Enterprise Act 2002 (EA02) if he or she dishonestly agrees with one or more other persons to make or implement or cause to be made or implemented one or more of the prohibited cartel activities (listed above) and relating to at least two businesses. On conviction, he or she may receive a maximum sentence of six months' imprisonment and/or a fine up to the statutory maximum (on summary trial) or a maximum of five years' imprisonment and/or an unlimited fine (on trial on indictment). The OFT may also apply for a Competition Disqualification Order against a current or former director of a company because of a breach of competition law.

In the UK the CA98 and EA02 are enforced principally by the OFT. The concurrent regulators¹ have concurrent powers to enforce CA98 but not EA02. In England, Wales and Northern Ireland, prosecutions under EA02 are generally undertaken by the OFT although the Serious Fraud Office (SFO) also has the power to prosecute. In Scotland, prosecutions are brought by the Lord Advocate.

¹ The concurrent regulators are: Civil Aviation Authority (CAA) (national air traffic control services and airport operation services), Monitor (the provision of health-care services in England), Ofcom (electronic communication matters), Ofgem (gas and electricity markets in Great Britain), Ofwat (water and sewage markets in England and Wales), Office of Rail Regulation (ORR) (railway services in Great Britain) and Utility Regulator Northern Ireland (URegNI) (gas, electricity, water and sewage services in Northern Ireland).

3. Focus on leniency applications

Compared with other jurisdictions (such as the United States and the European Union), the UK's competition regime is still relatively young. The CA98 entered into force in 2000 while the criminal cartel offence under EA02 came in 2003. During much of this time, the OFT has principally relied on applications under its leniency programme to uncover cartels and to commence investigations.

Under this programme (which was revised in 2013 based on the OFT's experience to date), a business that informs the OFT of cartel activity that the OFT was not previously investigating can receive guaranteed immunity from any financial penalty, guaranteed protection from all of its cooperating employees (both current and former) from criminal prosecutions for the criminal cartel offence and full protection from possible sanctions under the director disqualification regime. The leniency policy therefore offers a very real incentive for businesses to come forward with information.² On the other hand it relies on businesses choosing to come forward. In addition, OFT experience suggests that leniency programmes tend to catch 'late stage' or failing cartels.

In addition to its leniency programme and its intelligence-led approach, the OFT's approach to deterring cartels and achieving prevention includes publishing guidance and encouraging competition compliance programmes.³

The OFT so far has not made use of screens to detect cartels although it sees the value in this method of cartel detection. For example the OFT has published research on the economic and structural factors that are typically considered to contribute to the formation, maintenance or detection of cartels.⁴ However, it is unlikely, in the UK at least, to provide in and of itself the evidential basis for initiating a formal cartel investigation. This type of screening analysis could, however, be a useful source of information for intelligence-led investigations. It could also provide a basis for targeting industries susceptible to cartel activity with publicity about cartel enforcement.

Since the entry into force of the EA02, the OFT has also had the power to undertake criminal cartel enforcement against individuals. A challenge under that regime is that to date while there have been a number of investigations, there has been only one successful prosecution⁵ and two prosecutions out of seven completed investigations.

4. Towards a more proactive approach to cartel investigations

The challenges identified above have not gone unnoticed. The lack of criminal prosecutions, for example, has been a major factor in the UK Government's decision to reform the criminal cartel offence. Amongst other changes, the Enterprise and Regulatory Reform Act 2013 removes the dishonesty requirement and introduces new exclusions and defences.⁶

² For further information, see 'Applications for leniency and no-action in cartel cases: OFT's detailed guidance on the principles and process', July 2013 (OFT1495) http://www.of.gov.uk/shared_of/reports/comp_policy/OFT1495.pdf

³ For example 'How your business can achieve compliance with competition law', June 2011 (OFT1341) http://www.of.gov.uk/shared_of/ca-and-cartels/competition-awareness-compliance/of1341.pdf

⁴ 'Predicting Cartels', a report prepared for the Office of Fair Trading by Paul A Grout and Silvia Sonderegger, March 2005 (OFT773) http://www.of.gov.uk/shared_of/reports/comp_policy/of773.pdf

⁵ The Marine Hose investigation; see <http://www.of.gov.uk/OFTwork/competition-act-and-cartels/criminal-cartels-completed/marine-hose>

⁶ See https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/243709/5-cartel-offence-prosecution-guidance-consultation.pdf

The OFT has also taken a number of steps to reduce its reliance on leniency by building its resilience and capability in the field of cartel enforcement and moving towards a more ‘intelligence-led’ approach to cartel detection.

The overarching aim of these changes is to increase deterrence by:

- improving detection rates
- achieving a balanced portfolio, and
- delivering cases more efficiently.⁷

4.1 Building capacity

The OFT has sought to build its cartel detection capability in a number of ways. These include in recruitment and training, including strengthening its investigator and senior legal resource. By strengthening its senior resource and giving case teams greater autonomy, the OFT is also becoming quicker and more efficient.

Previously the OFT’s Cartels and Criminal Enforcement Group (CCEG) was heavily reliant at a senior level on a very small number of people. This created both a bottleneck problem within the group and a ‘key-man’ risk – the loss of even one of these individuals would have seriously impeded the effectiveness of investigations.

To address these risks, the OFT developed a recruitment strategy aimed at addressing the key gaps within the group. This included recruiting a senior serving police officer with over thirty years’ experience to improve investigations and create a new dedicated intelligence function. He in turn has recruited a number of additional experienced investigators and intelligence officers and put in place a comprehensive training programme to refresh and enhance the skills of investigators. The OFT also appointed the OFT’s first Director of Investigations and Criminal Enforcement who has over twenty years’ experience in the field, initially as a policy officer and in-house solicitor in the Metropolitan Police and then ten years as a prosecutor at the SFO.

The OFT has also almost tripled CCEG’s senior legal resource. This means that all case teams in CCEG are now led by partner level lawyers, with multi-disciplinary teams including investigators, principal case officers and, where relevant, economists.

4.2 More effective intelligence function

The OFT has also reduced its reliance on leniency applications by developing its ability to take a more proactive approach to cartel detection, making full use of its investigatory powers including, where appropriate, its powers under the Regulatory of Investigatory Powers Act.⁸

⁷ In building its capacity the OFT is also reducing the time it takes to run cases while the intelligence-led approach has contributed to the OFT to maintaining a balanced portfolio, helping it to pick the right cases, including cases involving small or regional markets while retaining the ability to take more complex cases. Working with the Crown Office in Scotland, the OFT has also obtained and executed the first criminal cartel warrants in Scotland.

⁸ These allow it to require the production of communications data, carry out surveillance (directed and intrusive) and use covert human intelligence sources (CHIS).

The OFT's shift to becoming an intelligence-led enforcement agency is reflected in the fact that in the last four years, just over half of new cartel cases opened by CCEG have been intelligence-led (i.e. have not come to the OFT through leniency applications but have been uncovered by the CCEG through its own investigative capabilities).

A good example is the OFT's investigation into the supply of commercial vehicles, which started when the OFT received, through the post, a single document from an anonymous source. Through further investigation, CCEG was able to develop this intelligence sufficiently to be able to secure warrants for raids (which ultimately led to a major EU investigation). In this case, the OFT put out a call through the trade press asking those with information to contact the OFT's dedicated 'cartels hotline' and drew attention to the OFT's informant rewards programme, under which rewards of up to £100,000 may be paid. (The existence of the cartels hotline and the informant rewards programme are themselves a reflection of the OFT's commitment to an intelligence-led result).

In a separate case, on the basis of an intelligence-led investigation, in March 2013 the OFT issued five decisions finding that Mercedes-Benz and five of its commercial vehicles dealers infringed competition law and imposed fines totalling over £2.8 million. Each of the decisions relate to separate infringements that took place over different time periods and involving different parties; while the nature of the infringements varies, all contain at least some element of market sharing, price co-ordination or the exchange of commercially sensitive information.⁹

A further example is that through information obtained by the OFT's new dedicated intelligence unit, the OFT has been able to arrange for a suspect in a criminal cartel investigation who was based in the Far East to be arrested whilst on a private visit to the UK.

As a result of the wider enforcement experience of OFT staff, as well as working in partnership with the police and other enforcement agencies, the OFT is better able to make use of the full range of its investigative tools.

5. Consequences of the OFT's new approach

The OFT's ability to detect cartels using its intelligence capabilities is an important evolution in cartel enforcement in the UK. It is reasonable to expect that this might alter the perception of individuals and companies as to the likelihood of detection and successful prosecution. This, in turn, should increase the instability of cartels and incentivize reporting by, for example, suppliers, (ex) employees and customers, as well as leniency applicants, leading to a 'virtuous circle' of increased deterrence.

The OFT is taking a more professional, focussed and forensic approach in its cartels work under experienced senior management and in doing so is increasingly thinking and behaving like a mainstream criminal enforcement agency. It is also undertaking bigger operations. In inspections carried out at the end of 2012, 70 investigators were deployed across five sites throughout the UK, four individuals were arrested and the operation was coordinated with six police forces.

In the OFT's experience, the intelligence-led approach gives rise to a larger number of investigations than offered by either leniency or economic and market data analysis alone. However, its leniency programme, underpinned by its revised Leniency Guidance, is and will remain a key tool for the OFT.

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See press release: <http://www.oft.gov.uk/news-and-updates/press/2013/30-13>

UNITED STATES

1. Cartel Detection by the U.S. Department of Justice

In the United States, hard core cartels are prosecuted as criminal offenses. Because the Department of Justice's Antitrust Division ("DOJ"), but not the Federal Trade Commission, is empowered to prosecute criminal violations, the DOJ investigates and prosecutes these cases and can use the tools of U.S. federal criminal investigation to detect cartels. In DOJ cartel investigations, grand juries compel the production of documents and sworn testimony from witnesses, and with probable cause, the DOJ can obtain search warrants and seize documents. DOJ cartel investigations can use "consensual monitoring" in which audio or video recordings of cartel discussions are made with the consent of a participant. DOJ cartel investigations are supported by the FBI and other U.S. government agencies (such as agency inspector general offices), and coordinated with competition agencies in other countries.

DOJ cartel investigations are initiated by information suggesting the possible existence of cartel activity ("leads"), and for international price-fixing cartels, these leads mainly come from leniency applications. Since 1993, avoidance of all criminal sanctions has been automatic for qualifying corporations that come forward before the DOJ has other information indicating a cartel's existence. All officers, directors, and employees of these corporations are protected from criminal prosecution, provided that they cooperate in the investigation. Avoidance of criminal sanctions is potentially available even if cooperation begins after the DOJ has acquired information indicating the existence of the cartel.

In addition to leniency applications, DOJ often uncovers cartels when one investigation generates a lead for another. This occurs through the cooperation of leniency applicants and through the work of grand juries. The result can be a series of prosecutions for cartel activity within the same industry or at times stretching into new industries when a company is involved in multiple, unrelated conspiracies. Illustrative are recent prosecutions for bid-rigging and fraud in real estate foreclosure auctions in Northern California. To date, 36 individual plea agreements have been entered in connection with this investigation.

Other sources of leads are non-cartel investigations and outreach efforts. The DOJ solicits leads on its public website,¹ inviting contacts by e-mail, letter, and telephone. Customers and employees of firms engaged in cartel activity sometimes report suspicions of such activity to the DOJ. As discussed below, the DOJ has long reached out to procurement officials.

An indication of how DOJ cartel enforcement would operate without a leniency program is provided by data on the period before the first leniency program was instituted. A study of DOJ cartel cases filed and won during 1962–73 categorized the origin of many. The lead came from the complaint of a competitor, customer, or employee in 46% of the cases; from another cartel investigation in 24%; from a non-cartel investigation in 12%; from a government procurement agency in 12%; and from other sources in 6%.²

¹ The website offers guidance on identifying cartel activity: Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For—A Primer, *available at* <http://www.justice.gov/atr/public/guidelines/211578.pdf>.

² See George A. Hay & Daniel Kelly, *An Empirical Survey of Price Fixing Conspiracies*, 17 JOURNAL OF LAW & ECONOMICS 13, 21 (1974).

Because the DOJ prosecutes cartels criminally, it must be prepared to prove guilt to a jury beyond a reasonable doubt. Criminal cartel investigations are not begun absent a reasonable expectation that they will uncover sufficient evidence of cartel activity. Leads from the leniency program likely satisfy this standard because the DOJ will have cooperating co-conspirator witnesses. Consequently, leads from leniency applications typically are the most promising and are given the highest priority.

In practice, the distinction between reactive and proactive cartel enforcement is artificial when proactive steps generate the leads to which the agency then reacts. Creating an effective leniency program and agency outreach efforts are both proactive steps resulting in reactive cartel enforcement. The DOJ does not employ the term “ex officio investigation” but does initiate cartel investigations based on internally generated leads. The DOJ has no obligation to initiate cartel investigations in response to complaints but often does so.

2. The Use of Screens by the U.S. Department of Justice

The earliest attempt at cartel screening likely was that begun by the DOJ in 1936.³ President Franklin Roosevelt ordered all federal agencies to send the DOJ any “evidence regarding instances where there has been collusive or identical bidding.” In this event, however, the evidence typically turned out to be “so sketchy as to be worthless.”⁴

Cartel screening of a sort was facilitated in the late 1940s by separate federal statutes applicable to military and civilian federal procurement. Both provided: “If, in the opinion of the agency head, bids received after advertising evidence any violation of the antitrust laws, he shall refer such bids to the [DOJ] for appropriate action.”⁵ Lacking expertise in antitrust law, agencies referred many identical bids to the DOJ.⁶

In 1960 a DOJ investigation culminated in a federal grand jury in Philadelphia charging egregious cartel activity involving heavy electrical equipment, including bid-rigging in sales to the federal government.⁷ In reaction, President Kennedy ordered federal procurement officials to report identical bids to the DOJ and ordered DOJ to report on the information received.⁸ The DOJ invited state agencies to participate, and many did.⁹ “The principal purpose” of the Presidential order was to “make more effective the enforcement of the antitrust laws by insuring that the [DOJ has at its] disposal all information which may tend to establish the presence of a conspiracy in restraint of trade and which may warrant further investigation.”¹⁰

³ See TEMPORARY NATIONAL ECONOMIC COMMITTEE, GOVERNMENT PURCHASING—AND ECONOMIC COMMENTARY, MONOGRAPH NO. 19, at 113 (1940).

⁴ Robert A. Bicks, *The Federal Government’s Program on Identical Bids*, 5 ANTITRUST BULLETIN 617, 617 (1960) (This article is a speech delivered by Mr. Bicks as Assistant Attorney General, Antitrust Division.).

⁵ Armed Services Procurement Act of 1947, § 2(d), Public Law 80-413, 62 Stat. 21 (1948); Federal Property and Administrative Services Act of 1949, § 302(d), Public Law 81-152, 63 Stat. 397 (1949).

⁶ See U.S. DEPARTMENT OF JUSTICE, IDENTICAL BIDDING IN PUBLIC PROCUREMENT: REPORT OF THE ATTORNEY GENERAL UNDER EXECUTIVE ORDER 10936, at 3 (1962).

⁷ See generally CHARLES A. BANE, THE ELECTRICAL EQUIPMENT CONSPIRACIES (1973).

⁸ Executive Order 10936 (Apr. 24, 1961), 26 *Federal Register* 3555.

⁹ See IDENTICAL BIDDING, *supra* note 6, at 6.

¹⁰ Executive Order 10936.

In 1983 the identical bid reporting program was terminated by order of President Reagan, who concluded that the program was “ineffective” and “consume[d] resources that could be employed in a more effective manner to prevent antitrust violations.”¹¹ The DOJ explained to procurement officials that identical bidding, standing alone, was not “a sufficient indication of possible collusion to warrant formal investigation of all such instances” and that selecting which bids to investigate required “more meaningful data and advice from procurement agencies.”¹² The DOJ explained to Congress that “the program did not materially assist [it] in detecting unlawful price fixing among bidders on procurement programs. . . . We have been unable to document even one case that resulted from a lead generated by the identical bid reporting program.”¹³

In 1977 the DOJ initiated the “shared monopoly” program, in which a structural screen was first applied, then industry knowledge was applied to select industries for investigation¹⁴ with an eye toward practices facilitating pricing coordination.¹⁵ The senior DOJ official who initiated the program later explained that it had not made the DOJ “able to develop the kind of sensible collusion case based on an agreement to use facilitating practices that could successfully have been prosecuted under section 1 of the Sherman Act.”¹⁶

Over the years, economists have proposed several ideas to detect collusive behavior from observed price and quantity data. There are two issues with these methods. First, they cannot distinguish between cartel behavior and tacit collusion that leads to prices above “competitive” levels. So even if there were easy screens for what looks like collusive pricing they might still lead to many false positives. Second, obtaining and compiling the data is apt to be difficult and expensive, and the DOJ does not believe that it has the authority to compel production of data solely for screening purposes. For these reasons, it has not been seen as cost effective to employ such screens on a large scale, given limited agency resources.

The methods proposed in the literature can be divided into several non-mutually exclusive groups.¹⁷ First are methods that ask whether observed behavior is more consistent with collusion than competition.¹⁸

¹¹ Executive Order 12430 (July 6, 1983), 48 *Federal Register* 31371.

¹² Letter from William F. Baxter, Assistant Attorney General, Antitrust Division, Oct. 3, 1983. This is true even though identical bids can be an optimal cartel strategy. See Susan Athey, Kyle Bagwell & Chris Sanchirico, *Collusion and Price Rigidity*, 71 *REVIEW OF ECONOMIC STUDIES* 317 (2004); R. Preston McAfee & John McMillan, *Bidding Rings*, 82 *AMERICAN ECONOMIC REVIEW* 579 (1992).

¹³ Letter from Robert A. McConnell, Assistant Attorney General, Legislative Affairs to Peter W. Rodino, Jr., Chairman, Committee on the Judiciary, House of Representatives, Jan. 24, 1984.

¹⁴ See Ky P. Ewing, Jr., Deputy Assistant Attorney General, Antitrust Division, Remarks on Shared Monopoly and Concentration, 18th Annual Advanced Antitrust Seminar of the Practising Law Institute, Dec. 1, 1978.

¹⁵ See John H. Shenefield, Assistant Attorney General, Antitrust Division, A Section 1 Approach to Shared Monopoly Prosecution: Facilitating Devices (May 26, 1978).

¹⁶ *Remarks of John H. Shenefield, Former Assistant Attorney General*, 39 *ANTITRUST BULLETIN* 883, 888 (1994) (on the occasion of the 60th anniversary of the creation of the Antitrust Division).

¹⁷ For further discussion see Joseph E. Harrington, Jr., *Detecting Collusion*, in *HANDBOOK OF ANTITRUST ECONOMICS* 213 (Paolo Buccirossi ed., 2008), and references therein.

¹⁸ See, e.g., Robert H. Porter, A Study of Cartel Stability: The Joint Executive Committee, 1880–1886, 14 *BELL JOURNAL OF ECONOMICS* 301 (1983); Timothy F. Bresnahan, Competition and Collusion in the American Automobile Industry: The 1955 Price War, 35 *JOURNAL OF INDUSTRIAL ECONOMICS* 457 (1987); Timothy F. Bresnahan, Empirical Studies of Industries with Market Power, in 2 *HANDBOOK OF INDUSTRIAL ORGANIZATION* 951 (Richard Schmalensee & Robert D. Willig eds., 1989); Aviv Nevo, Measuring Market Power in the Ready-to-Eat Cereal Industry, 69 *ECONOMETRICA* 307 (2001).

The basic idea underlying these methods is to use estimates of demand and cost to derive the equilibrium price and quantity predicted by different models, and statistically test which model best fits the data. The second and third groups of models follow a similar theme and ask if the observed behavior is consistent with competition,¹⁹ or if the behavior of the firms suspected of collusion differs from the behavior of competitive firms.²⁰

All the above methods, while popular in the academic literature, are time- and data-intensive and therefore hard to implement on a large scale. The fourth group of methods focuses on breaks in the time path of bid or price data that could be associated with cartel formation or collapse. These breaks could be in the level of bids or prices, or in the variance of bids or prices.²¹ U.S. federal procurement officials are required to report to the DOJ “events that may evidence violations of the antitrust laws” including a “sudden change from competitive bidding to identical bidding” and “[s]imultaneous price increases or follow-the-leader pricing.”²²

Little is known about the rates of false positives and false negatives for any of the methods. As noted, departure from competitive performance does not necessarily imply prosecutable cartel activity, and effective cartels could foil screening tools.²³ For these reasons, DOJ thus far has not found these methods to be a good use of its limited resources.

3. Guidance for Procurement Officials

In a long series of cases beginning in late 1979, the DOJ prosecuted over 300 corporations and over 300 individuals for bid-rigging in public construction projects, mainly road-building. In 1982, the DOJ and the U.S. Department of Transportation teamed up in an effort to instruct procurement and audit officials on how to deter and detect bid-rigging. The training manual that was produced suggested numerous practices and procedures for identifying possible bid-rigging.²⁴ The DOJ also began more widely distributing a paper titled *Think Antitrust: The Role of Antitrust Enforcement in Federal Procurement*,²⁵ which identified many indicators of possible collusion. In 1984, a DOJ official noted that such “instructional programs have proven fruitful, and have led to a number of successful prosecutions.”²⁶

¹⁹ See, e.g., Patrick Bajari & Lixin Ye, Deciding between Competition and Collusion, 85 REVIEW OF ECONOMICS & STATISTICS 971 (2003).

²⁰ E.g., Robert H. Porter & J. Douglas Zona, Ohio School Milk Markets: An Analysis of Bidding, 30 RAND JOURNAL OF ECONOMICS 263 (1999).

²¹ See Rosa M. Abrantes-Metz et al., A Variance Screen for Collusion, 24 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 467 (2006), or Yuliya Bolotova, John M. Connor & Douglas J. Miller, The Impact of Collusion on Price Behavior: Empirical Results from Two Recent Cases, 26 INTERNATIONAL JOURNAL OF INDUSTRIAL ORGANIZATION 1290 (2008).

²² 48 C.F.R. § 3.303.

²³ A cartel screen based on the distribution of bids was proposed in 1983 along with the warning that bidders “might arrange to have future bids fall outside” the identified criteria. Interdepartmental Bid Rigging Investigations Coordinating Committee, Suggestions for the Detection and Prevention of Construction Contract Bid Rigging (Feb. 1983), available at <http://www.fhwa.dot.gov/programadmin/contracts/dotjbid.cfm>.

²⁴ Suggestions for Detection, *supra* note 23.

²⁵ An updated version is available on the OECD website at <http://www.oecd.org/daf/competition/prosecutionandlawenforcement/2491618.pdf>.

²⁶ Letter from Robert A. McConnell, *supra* note 13.

One example is a case in which two vendors rigged the bids for the sale of nylon filaments to a federal prison, where prisoners used them to make paint brushes. Auditors discussing the matter over lunch became concerned that each bidder had been awarded half the contracts in each year, and they reported their concern to the DOJ. The DOJ investigated and successfully prosecuted the vendors and their executives for bid-rigging.²⁷ Another example is a case in which ostensibly independent bids were accompanied by letters containing a common typographical error (“Please give us a call *us* if you have any question.”). Federal officials overseeing the contracting had attended training by the DOJ and recognized the significance of the common error. This led to a DOJ investigation and successful prosecutions for bid-rigging.²⁸ A more recent example is a series of bid-rigging prosecutions involving the sale of real estate. The lead came from an audience member in a presentation made by a DOJ staffer to state officials.²⁹

Over the past decade, the DOJ has assisted in the training of thousands of federal, state, and local officials responsible for procurement and grant awards.³⁰ The objective was to make prevention and detection of collusion part of their daily work by instilling a healthy scepticism about those seeking to profit from government contracts. The training has used concrete examples of procurement cartels DOJ had prosecuted. The DOJ website includes a page titled “Training on Collusion and Fraud Awareness” and identifies an electronic mailbox to which requests for training can be sent.³¹

The DOJ also teaches procurement officials the Red Flags of Collusion—warning signs grouped into categories with the acronym MAPS.³² The M is Market; trainees are taught to consider the structure of the market and its susceptibility to collusion. The A is Applications; trainees are taught to look for suspicious similarities in bids or proposals, such as common typos. The P is Patterns; trainees are taught to look for suspicious patterns in bidding and awards. They should consider both whether awards are oddly unchanging over time and whether they change in a predictable manner. And the S is Suspicious Behavior; trainees are taught to examine what vendors say and do for signs that they may have colluded.

²⁷ United States v. Jack Spector, Inc., Criminal No. 87-200084 (D. Kan., Sept. 11, 1987).

²⁸ United States v. Kenneth Koo Lee, Criminal Case No. 00-00091 (D. Guam, July 14, 2000); United States v. Young Soo Yoon, Criminal Case No. 00-00092 (D. Guam, July 14, 2000); United States v. Primitivo Duque Carlos, Criminal Case No. 00-00123 (D. Guam, Oct. 24, 2000); United States v. Il Young Cho, Criminal Case No. 01-00008 (D. Guam, Jan. 31, 2001); United States v. Jessie S. Pendon, Criminal Case No. 01-00071 (D. Guam, July 25, 2001). A local government official was convicted of multiple offenses, including bribery, and was sentenced to a prison term of 100 months. United States v. Austin J. “Sonny” Shelton, Criminal Case No. 01-00007 (D. Guam, Jan. 31, 2001).

²⁹ United States v. Isadore H. May, Criminal No. 11-562-1 (D.N.J., Aug. 24, 2011); United States v. William A. Collins, Criminal No. 11-563-1 (D.N.J., Aug. 24, 2011); United States v. Richard J. Pisciotta, Jr., Criminal No. 12-561 (D.N.J., Aug. 24, 2011); United States v. David M. Farber, Criminal No. 12-139-1 (D. N.J., Feb. 23, 2012); United States v. Robert W. Stein, Criminal No. 12-140-1 (D.N.J., Feb. 23, 2012); United States v. Robert E. Rothmann, Criminal No. 12-210-1 (D. N.J., Mar. 27, 2012); United States v. David Butler, Criminal No. 12-273-1 (D.N.J., Apr. 23, 2012); United States v. Stephen E. Hruby, Criminal No. 12-263-1 (D.N.J., Apr. 17, 2012); United States v. DSBD, LLC, Criminal No. 12-274-1 (D.N.J., Apr. 23, 2012); United States v. Crusader Servicing Corp., Criminal No. 12-644 (D.N.J., Dec. 19, 2012); United States v. Mercer S.M.E., Inc., Criminal No. 12-832-1 (D.N.J., Dec. 19, 2012); United States v. Norman T. Remick, Criminal No. 13-252 (D.N.J., Apr. 25, 2013).

³⁰ Most of this training was part of an initiative to protect stimulus funds provided under the American Recovery and Reinvestment Act of 2009. For details, see Statement of Scott D. Hammond before the Committee on Homeland Security and Governmental Affairs of the U.S. Senate (Sept. 10, 2009), available at <http://www.justice.gov/atr/public/testimony/250274.pdf>.

³¹ The link is <http://www.justice.gov/atr/public/criminal/recovery-training.html>.

³² The two-page card provided to trainees is attached as an appendix. The content of the card is available at <http://www.justice.gov/atr/public/criminal/red-flags-collusion.html>.

U.S. law provides that: “If the head of [a federal] agency [engaged in procurement] considers that a bid or proposal evidences a violation of the antitrust laws, he shall refer the bid or proposal to the [DOJ] for appropriate action.”³³ The implementing regulation³⁴ states that “[a]ny agreement or mutual understanding among competing firms that restrains the natural operation of market forces is suspect” and “identifies behavior . . . sufficiently questionable to warrant notifying” the DOJ. Questionable behavior includes: market conditions, e.g., “an industry price list or price agreement to which contractors refer in formulating their offers;” application attributes, e.g., “the appearance of identical calculation or spelling errors in two or more competitive offers or the submission by one firm of offers for other firms;” bidding patterns, e.g., “[r]otation of bids or proposals, so that each competitor takes a turn in sequence as low bidder, or so that certain competitors bid low only on some sizes of contracts and high on other sizes;” and suspicious behavior, e.g., “[a]ssertions by the employees, former employees, or competitors of offerors, that an agreement to restrain trade exists.”

4. Conclusion

As this submission explains, DOJ has employed several methods for cartel screening and found that those methods did not produce solid leads for cartel investigations. At this time, the DOJ has no plans to redeploy investigative resources into screening for indications of cartel activity. The DOJ has had continuing success with the many other means for generating investigative leads. The DOJ, however, is interested in the experience of other jurisdictions.

³³ 10 U.S.C. § 2305(b)(9); 41 U.S.C.A. § 3707.

³⁴ 48 C.F.R. § 3.303.

BIAC

1. Introduction

The Business and Advisory Committee (“BIAC”) to the OECD welcomes the opportunity to provide its views to the OECD Competition Committee for the roundtable on ex officio cartel investigations and the use of screens to detect cartels. Indeed, the use of empirical methods to analyse economic data, such as price developments, bidding patterns and market share fluctuations to detect suspicious instances of cartel behaviour has over the past few years gained significant practical importance.

BIAC appreciates the efforts that national competition authorities (“NCAs”) put into prosecuting hard core cartels. Indeed, the international business community stands to gain from effective cartel enforcement, competitive markets and a level playing field. BIAC also appreciates that in the vast majority of jurisdictions, NCAs enjoy discretion in designing their cartel detection policy.¹ However, when considering the broad trends in international cartel enforcement across the world today, many agencies appear to display a preference for reactive cartel detection tools, relying predominantly on leniency applications and complaints.

In BIAC’s view, the question should not be whether preference should be given to either proactive or reactive detecting tools, but which techniques and approaches are best suited to detect cartels in specific settings. Proactive enforcement tools, including a careful and informed use of economic methodologies, such as tailored detection screens may in some specific cases be efficient and may even be desirable, provided adequate procedural safeguards for the companies under scrutiny are in place. BIAC appreciates the opportunity for a substantive discussion on the use of cartel detection screens and other structural and behavioural indicators and respectfully submits the following general observations.

First, BIAC observes that reactive cartel detection based on leniency / amnesty regimes that seek to incentivize cartel participants to provide relevant information to the agencies have in certain jurisdictions been proven to contribute significantly to the detection of illegal conduct. However, much more can and should be done to further refine and align these regimes internationally.² In this respect BIAC notes that a number of more established and newer agencies have to date not been able to set up credible leniency programmes. While there may be many legitimate obstacles to establishing these programs, BIAC believes it would be worthwhile for competition enforcement agencies to continue to devote considerable resources to the creation and improvement of leniency programs and to devote resources to compliance education and encouragement of genuine and effective antitrust compliance programmes within businesses, instead of, or at least as a priority before, diverting those resources away to the development of pro-active detection methods.³ This is particularly so because there is still significant debate on the methodologies that should

¹ See for instance, Nicolas Petit, “How much discretion do, and should, competition authorities enjoy in the course of their enforcement activities? A multi-jurisdictional assessment”, *Concurrences* no. 1-2010, p. 46.

² See also BIAC's discussion points on Improving International Co-operation in Cartel Investigations submitted to the OECD Global Forum February 2012 and on Leniency for Subsequent Applicants submitted to the WP3 October 2012.

³ See BIAC Paper submitted for the June 2011 Roundtable on promotion of compliance with competition law: DAF/COMP/WD(2011)27. These efforts would complement businesses’ own efforts in this field. See

form the basis of reliable pro-active detection techniques. In contrast, while the functioning of leniency programs may in many cases be improved upon, BIAC believes that these programs are on balance more likely to lead to the successful detection and prosecution of cartels. Indeed, although difficult to quantify, the gains of leniency regimes are well-recognised. In contrast, much less is known about the actual enforcement benefits, compared to the undoubted up-front costs, of screening mechanisms and ex-officio investigations.

Second, BIAC notes that the methodology underlying a variety of the structural screening methods is criticised. The thrust of this criticism is that the methodologies applied may not reliably indicate the presence of cartel behaviour and may give rise to both false positives and negatives. In this respect BIAC is particularly concerned that pro-active detection techniques may give rise to false positives, which in turn may inflict significant cost on business.

Third, agencies should be particularly mindful that launching ex-officio investigations may have very serious negative repercussions for companies because these types of investigations tend to become publicly known, sometimes even as a result of the agency's own actions. While agencies may stress that the ex-officio investigation at issue is of a preliminary nature only and that the companies that are targeted or are being screened are not under any specific suspicion, in many cases "the damage is already done," in particular since claims for damages may be brought based on the mere announcement of an investigation and one agency's interest can lead to a cascade of investigations around the globe. Obviously, this is particularly worrying if it turns out that the company at issue was not involved in any illegal conduct. Indeed, law suits, particularly in the US, inflict significant cost on business and may cause considerable disruption and distraction, even if they are ultimately unsuccessful.

Fourth, competition enforcement agencies should resist the temptation to rely excessively on ex-officio investigation or to devote disproportionate resources to the development and use of economic detection screens to avoid the risk that colluding companies may doubt their capacity to prosecute.⁴

Fifth, BIAC takes the position that there is a risk that the use of screens may result in disproportionate and excessively wide-ranging ex officio investigations. If screening mechanisms generate credible and sufficiently robust indications of potential cartel conduct based on which the agency decides to launch a follow-up investigation, that investigation should be limited to the scope necessary to confirm the preliminary findings of the agency.

Sixth, despite its reservations, BIAC is of the opinion that the prudent use of screening mechanisms may not only bring direct benefits in the form of more effective cartel enforcement but may also lead to indirect benefits. In particular, (i) firms may be less likely to engage in collusive conduct if they perceive that the probability of being caught is higher⁵ and (ii) credible, balanced ex-officio investigations may contribute to more frequent use by companies of agencies' leniency programs.⁶ Indeed, these investigations may add credibility to an agency as an effective, reliable and fair enforcement agency but since the indirect benefits depend on publicising the screening activity, they also involve risks. Firms may attempt to adjust

in that respect for instance the ICC Antitrust Compliance Toolkit, available at <http://www.iccwbo.org/about-icc/policy-commissions/competition/>.

⁴ See Wouter Wils, "Leniency in antitrust enforcement: theory and practice", [2007] 30 World Competition 25-64, page 29.

⁵ Rosa M. Abrantes-Metz, "Design and Implementation of Screens and Their Use by Defendants", page 5.

⁶ It is argued that screens may also provide valuable circumstantial evidence for both sides in a litigation, i.e., for defendants to establish the non-existence of a conspiracy and for plaintiffs in estimating damages. See Rosa M. Abrantes-Metz and Patrick Bajari, "Screens for Conspiracies and Their Multiple Applications", American Bar Association, vol. 24, no. 1, 2009, pages 66, 70.

their cartel behaviour so as to remain undetected by a particular screen. More seriously, firms that are not involved in any illegal activity, but have come under scrutiny could be severely damaged by the negative publicity the screening may generate.

Imprudent, over-inclusive, or unnecessary ex-officio investigations (“fishing expeditions”) may detract from the legitimacy of the agency and may, as a result, have negative repercussions on the utilisation of the agency’s reactive enforcement tools, in particular on its leniency programs.

2. **Recalibration of cartel detection tools - a better balance between proactive and reactive techniques?**

In general terms and subject to the points made above, BIAC supports the use of proactive detection methods towards uncovering collusive conduct. In this regard, BIAC believes that information received from other agencies, or through the monitoring of companies press releases, tracking companies’ behaviour, or from complaints may all contain indications of potential collusive behaviour that may warrant further consideration. BIAC believes that any follow-up investigations should be restricted to what is necessary to assess the initial signals.

BIAC believes that agencies’ generally have the required investigative tools to adequately follow-up on any signals of collusive conduct, in particular by requesting additional information from market participants, conducting dawn raids where there is a sufficiently strong indication of wrongdoing, or other means. BIAC acknowledges that the use of econometric screening methods as a means of strengthening an agency’s suspicion of the existence of cartel conduct in a market may be warranted. However, for the reasons explained in more detail below, BIAC is not in favour of a wide use of economic screening methods, the outcomes of which would in and of themselves be relied upon to justify the launch of an ex-officio investigation.

Although officials of competition agencies have advocated an increase in the number of ex officio investigations for some time,⁷ BIAC notes that, for example in the EU, in 2010, only a quarter of the cartel proceedings were initiated without reverting to reactive tools,⁸ such as complaints submitted by customers,

⁷ See: In particular former EU Commissioner for Competition Policy, N. Kroes, **Key developments in European competition policy over the past two years**: “[...] I set out three strategic objectives for my mandate: [...] promoting a proactive competition policy to complement traditional - reactive - case based approach.” (European American Press Club, speech 07/2, 8 January 2007, available at http://europa.eu/rapid/press-release_SPEECH-07-2_en.htm); current EU Commissioner for Competition Policy, J. Almunia, in **Recent Developments and future priorities in EU competition policy**: “[a]s to our policy for the future, I intend to initiate more cases ex officio, because it is important to target markets that we know from experience are prone to cartel behavior.” (International Competition Law Forum St. Gallen, speech 11/243, 8 April 2011, available at http://europa.eu/rapid/press-release_SPEECH-11-243_en.htm) and DG COMP’s Management Plan for 2012: “Our leniency policy is another major success and we will draw on its merits, but in the coming months we will also pursue more cases ex officio whenever the opportunity presents itself” (available at http://ec.europa.eu/atwork/synthesis/amp/doc/comp_mp.pdf, page 4 and Director General for DG Competition, EU Commission, A. Italianer, in **Zero tolerance for international cartels**: “[t]he Commission has also invested important resources into market monitoring as well as ex-officio work. There have been numerous cases that have started ex officio [...] and you will see more such cases in the future. [...] we are fully determined to start own initiative inquiries [...] my message today is that we are not complacent, we do not merely rely on leniency, we are not just reactive. We are vigilant and will pro-actively pursue the ex officio route. [...] better detection continues to be a priority.” (ICN cartel workshop, 10-13 October 2011, speech available at http://ec.europa.eu/competition/speeches/text/sp2011_11_en.pdf).

⁸ J. Almunia, current EU Commissioner for Competition Policy, in **Compliance and competition policy**, speech 10/586, 25 October 2010, available at http://europa.eu/rapid/press-release_SPEECH-10-

individual whistle-blowers or leniency applications lodged by cartel participants. However, despite their contribution to competition enforcement, leniency programs are not all optimally designed⁹ In order for a leniency programme to be most effective, it has to be predictable and transparent and it has to entail certainty, clear incentives and an emphasis on priority.¹⁰ However, based on the absence of some of these features in current leniency systems, blowing the whistle may not be effectively encouraged in practice.¹¹

BIAC is concerned about the difficulties companies face due to the lack of a “one-stop leniency shop” and lack of harmonisation among competition agencies in leniency and marker policies. As cartels often take place in a global setting, undertakings file concomitantly leniency applications in various jurisdictions. This exercise is onerous, difficult to coordinate and expensive, without applicants being able to predict in a timely manner if they will qualify for leniency. In this respect, BIAC has advocated a “one-stop shop” mechanism for markers¹² and would support other initiatives which would contribute to streamlining the information required from cartel participants.

Moreover, BIAC notes that the guidance provided by NCAs with regard to leniency filings is often suboptimal; in most cases, the information required is not predictable from the outset. Hence, for example in the EU, companies may find themselves engaged in races for data of “significant added value”, uncertain when to sacrifice completeness to timeliness or vice versa. The EU Commission will determine whether the provided evidence meets the “significant added value” threshold only later on in the proceedings, which creates uncertainty.¹³

The pitfalls mentioned above coupled with potential exposure to criminal sanctions, the increasing trend of private enforcement and the risks arising in relation to the disclosure of incriminating documents, the broad discretion that NCAs have in granting markers and the increasing recognition of the importance of human rights in competition law may create disincentives for companies to self-report collusive conduct. In BIAC's view, the most cost-effective way for many agencies to improve their enforcement effectiveness would be to update the design of their leniency programs to remove these current shortcomings and to enhance international convergence, including by the introduction of a one-stop-shop for leniency markers, as well as to actively promote and stimulate compliance efforts by businesses.

[586_en.htm](#). Moreover, for the period 2005-2009, 77% of cases were initiated by immunity applicants (see “US and EU cartel investigations, a webinar series. Amnesty-leniency strategy”, page 13). Such measures are also referred to as “bottom-up” or “ex post” approaches.

⁹ In November 2012 there were 26 EU jurisdictions having a leniency program in place. See http://ec.europa.eu/competition/ecr/leniency_programme_nca.pdf. In 2010 more than 40 jurisdictions worldwide had instituted immunity and/or leniency programmes. See ICN's Anti-Cartel enforcement manual, 2010, page 10, available at <http://www.internationalcompetitionnetwork.org/uploads/library/doc628.pdf>.

¹⁰ OECD's Report on fighting hard core cartels: harm, effective sanctions and leniency programs, 2002 available at <http://www.oecd.org/competition/cartels/1841891.pdf>.

¹¹ See Tine Carmeliet, “How lenient is the European leniency system? An overview of current (dis)incentives to blow the whistle”, Jura Falconis Jg. 48, 2011-2012, number 3.

¹² See BIAC reference to the “one stop shop” marker mechanism in the June 18, 2013 BIAC paper to the OECD Competition Committee Working Party 3 on Co-operation and Enforcement discussion on International Co-operation and the 1995 Recommendation: Next Steps, www.biac.org.

¹³ See Jatinder S. Sandhu, “The European Commission's leniency policy: a success?”, [2007] E.C.L.R., issue 3, pages 148-157.

3. Screening as an effective proactive way to detect cartels?

BIAC acknowledges that leniency programs, despite their positive results and even with the improvements suggested, may still fail to uncover all successful and durable cartels.¹⁴ Indeed theory may suggest that leniency programs tend to be a more attractive option when the cartel is breaking down or is inefficient.¹⁵ In this light, BIAC supports initiatives of antitrust agencies that seek to adopt complementary methods to detect undiscovered anticompetitive conspiracies. One such an alternative is the use of screens.

A screen is a statistical test based on an econometric model and a theory of alleged illegal behaviour, which is aimed at identifying collusion (or any other type of cheating such as manipulation or fraud) in a particular market. Screens may also serve to detect which companies have been involved in the anti-competitive practice and for how long collusion has been in place. Screens are generally based on commonly available data, including: prices, bids, costs or market shares to identify patterns in the information that are highly improbable or anomalous. Screening can also be based on a “behavioural” or an “outcome” approach, whereby economists look at observable data which reflects the markets’ and the market participants’ behaviour. Following the identification of the relevant data, economists apply screens in order to observe whether the observed behaviour is likely the result of an anti-competitive agreement.

More specifically, empirical screens are designed to identify either: (i) events that are improbable to occur unless firms in the industry are coordinating their behaviour or (ii) anomalous patterns in comparison with other markets. For a screen to be as effective as possible, (i) it needs to be designed for the situation at hand, i.e., it needs to be custom-made or targeted to the case under examination; and (ii) the data utilized should be accurate and of high-quality.

Economic theory has long identified the conditions that facilitate the emergence of cartels. These conditions are summarized below:¹⁶

- structural – low number of competitors, high entry barriers, frequent firm interaction, high market transparency;
- demand side – market growth, absence of fluctuations and business cycles, low demand elasticity, absence of buying power, absence of network effects;
- supply side – mature industries with stabilized technology, symmetric costs, symmetric capacities, product homogeneity, multi-market contact, structural links between firms; and
- the presence of cooperation and other contractual agreements between competitors.

These conditions can be monitored relatively easily in theory but the cost of such monitoring across an economy at a useful level of detail would be prohibitive and even then the conditions do not indicate whether a cartel in fact exists; they merely help one assess whether market characteristics are likely to facilitate or hinder collusion. At best, they can therefore only provide a preliminary screen, useful to exclude unlikely candidates at an early stage of the analysis. They cannot be used to provide evidence that collusion in a particular industry is actually likely. Put differently: the general principles mentioned above

¹⁴ See for instance Rosa M. Abrantes-Metz, “Design and Implementation of Screens and Their Use by Defendants”, Competition Policy International, Antitrust Chronicle, September 2011(2), page 4.

¹⁵ Ibidem, page 5; and Rosa M. Abrantes-Metz, Proactive vs Reactive Anti-Cartel Policy: The Role of Empirical Screens, page 18.

¹⁶ See for example Rey (2006).

are helpful, but not sufficient. Moreover, if the above criteria are used, it is important to avoid a simplistic checklist approach but rather develop in each case a theory of collusion grounded in the reality of the industry.

One advantage of the criteria set out above is that they focus specifically on the circumstances in which any cartels that may exist are most likely to cause significant consumer harm. For instance, in a market with a relatively large number of suppliers facing powerful buyers, a cartel may still arise, but is less likely to cause substantial consumer harm.

Some of the tools routinely used in merger control to assess whether competition is intense can be used to screen out markets that are unlikely to be cartelised: fast pace of innovation, strong market share volatility, etc. Even if cartels exist in these cases (which is unlikely), they are probably ineffective and therefore not causing significant consumer harm. In any event, these indicators are not sufficient in any situation to strongly suggest, let alone conclude on the existence of collusion. Markets may have all the above characteristics and still not be cartelized. To suggest otherwise would be to presume guilt from circumstances over which market players have no control. It is important to recognize, as Abrantes-Metz (2011), that there is no one-size fits-all approach and that screens have to be customised to the characteristics of each market and to a specific alleged conduct.

Thus, even a properly designed and implemented screen based on general indicators will lead to incorrect outcomes: it may indicate that there was collusion when there was none (false positive or type I error) or it may indicate that there was no collusion when there was (false negative or type II error). Also, as mentioned above, it should be noted that screens in themselves do not constitute proof of collusion. They may be useful for flagging issues that are improbable under effective competition within a particular industry, but they will not constitute sufficient evidence to prove or disprove a potential cartel.

To enhance the likelihood of reliable outcomes, there will be a need for tailored screens that look beyond general indicators. A tailored screen can be seen as a second step in the cartel screening process. If general indicators point indicate that the market characteristics are conducive to coordination, further detailed industry-specific analysis should be undertaken before any conclusions can be drawn. The nature of competition in the market at hand must be taken into account in order to form a theory of collusion consistent with the facts. This theory should clearly state the market consequences of collusion and what differentiates these from competitive market outcomes. Once the theory is clear, it may be possible to identify specific tests to assess whether the market was likely to be cartelised. Several authors have proposed tests based on econometric models or using market statistics.¹⁷

Bid-rigging is the area where screens could potentially be most effective. Tenders are usually organised in controlled environments with clear rules, which facilitate understanding the nature of competition and of the possible collusive behaviour. Moreover, the transparency of the process generates clean and usable data. Screens can be relatively easy to apply due to the data availability and to the relative simplicity of the underlying collusive theory. Screens can be based on improbable patterns generated by the collusive behaviour: bids should be independent once public information is controlled for; if firms collude bids are no longer independent and correlation between them is too large. Alternatively, screens may also be based on control groups: how well do bids reflect costs? How does the price/cost relation

¹⁷

Include main authors and examples of most commonly used methodologies. Abrantes-Metz and Bajari (2012) present examples of screens for different types of cartels. Ulrich Laitenberger & Kai Huschelrath, "The Adoption of Screening Tools by Competition Authorities," CPI Antitrust Chronicle September 2011(2) -discuss both cross-industry and market-based screens. Joseph E Harrington Jr, "Behavioral Screening and Detection of Cartels," European Competition Law Annual 2006 discusses the structuring of screens based on various markers.

compare to other neighbouring markets? Examples of situations where these screens were applied include the school milk distribution market in Ohio between 1980 and 1990¹⁸ and the procurement for generic drugs in Mexico.¹⁹

In the case of price-fixing, applying screens presents additional difficulties due to the infinitely varied nature of the competitive process. Contrary to bid-rigging in tenders, this type of collusion arises in markets where competition develops in a much less controlled environment with no clearly defined rules. Detailed data is less likely to be available, external factors exert a greater influence on market outcomes and it is more difficult to identify a clear counterfactual.

In these cases screens may look for improbable patterns such as identical prices across firms especially if (i) prices remain identical for long periods of time; (ii) prices previously were different (and start becoming identical) (iii) price increases do not appear to be explainable by increased costs; (iv) discounts are eliminated, especially in a market where discounts historically were given, or (v) vendors are charging higher prices to local customers than to distant customers. Similarly, screens may compare collusive and competitive regimes by showing that (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; and (iv) prices followed costs movements more closely under competition than under collusion. These criteria have been used in several cartel investigations, including gasoline stations.²⁰

These screens for price-fixing conduct however have a number of weaknesses.

- First, the initial selection of industries to which screens may be applied in a second step may necessarily give rise to Type 1 and 2 errors.
- Second, the use of adequate screens require substantial amount of data that are often not available.
- Third, all the patterns described above may occur in competitive markets, and therefore do not constitute sufficient evidence of collusion. For example, in relatively static markets for homogenous products, prices may vary little over time and across suppliers, even in the absence of any coordination. Similarly, sudden price changes can be caused by changes in input costs, entry or exit of suppliers, changes in production capacity, changes in demand, changes in regulation, etc.
- Fourth, most of these criteria rely on the existence of structural breaks (e.g. sudden changes in pricing patterns) and would therefore only detect new cartels, and not the ones that have been around for some time. Finally, colluding firms may seek to avoid raising attention by increasing prices progressively and in small steps, therefore failing to be identified by screens focusing on structural breaks.

In light of the above, BIAC notes certain negative aspects of screens. Whereas they can call attention to a particular market for further consideration, they cannot serve as firm evidence of potential anti-competitive behaviour. It also remains uncertain whether screens can differentiate between the various possible causes for anomalous behaviour or whether they can indicate the intention behind it. Moreover, as

¹⁸ See Porter and Zona, 1997.

¹⁹ See Mena-Labarthe, 2012.

²⁰ See Abrantes-Metz, Froeb, Geweke and Taylor, 2006.

mentioned above, screens need to be individualised to the market at hand (i.e., there is not a catch-all-type of screen) and their performance is highly dependent on the availability and the quality of the data. Thus, screens will likely be unsuccessful in circumstances where it is difficult to gather observable data. Even when a screen has been designed for a particular market, based on reliable data, it may still generate erroneous conclusions, most often false positives which can be hugely and unfairly costly to businesses caught up in unnecessary investigations.

Despite the limitations of empirical screens, BIAC is aware that screens have been successfully implemented in certain economic sectors, sometimes with the benefit of hindsight.²¹ Empirical screens applied by the Wall Street Journal successfully flagged the possibility of a conspiracy to manipulate the LIBOR by several major banks, as well as the LIBOR denominated in other currencies, and similar benchmarks including EURIBOR in Europe and TIBOR in Japan.²² Similarly, the Mexican NCA was able to detect a conspiracy in the pharmaceutical sector following the implementation of a big-rigging screen.²³ On the other hand, BIAC is also aware that screens have failed to achieve their objective in other occasions. For example, the use of a variance screen by the Austrian NCA in its investigation of the petrol and diesel markets proved highly unreliable.²⁴

BIAC does not support the view of those who categorically claim that “screens do not work” and that, as a consequence, antitrust agencies should categorically refrain from using such mechanisms in their fight against cartels. However, BIAC is concerned that competition authorities that decide to spend significant resources on the development of empirical screens may vest an excessive degree of trust in such instruments and divert valuable resources away from more cost-effective enforcement tools, particularly, at this point, away from improving leniency regimes and efforts aimed preventative measures such as the effective use of compliance programmes by business.

²¹ The Italian NCA tested the power of the variance screen for prices to detect previously known illegal conspiracies. The outcome was positive in the sense that the screen would have correctly detected the two cartels in the markets for fuel (gasoline and diesel), on the one hand, and personal care and baby milk sold in pharmacies, on the other hand, before the Italian NCA did. (see Rosa M. Abrantes-Metz, *Proactive vs Reactive Anti-Cartel Policy: The Role of Empirical Screens* (June 2013), page 15; and presentation before ABA, December 2011, slide 11).

²² See Rosa M. Abrantes-Metz and Albert D. Metz, “How Far Can Screens Go in Distinguishing Explicit from Tacit Collusion? New Evidence from the Libor Setting”; and Rosa M. Abrantes-Metz, *Proactive vs Reactive Anti-Cartel Policy: The Role of Empirical Screens*, page 20 onwards.

²³ See Carlos Mena-Labarthe, “Mexican Experience in Screens for Bid-Rigging”, *Competition Policy International, Antitrust Chronicle*, March 2012 (1).

²⁴ See Annual Report on Competition Policy Developments in Austria submitted to the OECD, para. 60, 7 October 2009, available at [http://search.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP\(2009\)27/02&docLanguage=En](http://search.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=DAF/COMP(2009)27/02&docLanguage=En).

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

*By Rosa M. Abrantes-Metz**

1. Motivation

Despite the successes of cartel detection over the last twenty years, there are many who believe that competition authorities have just started to scratch the surface. The focus of this note is to make the case that proactive detection and deterrence policies need to be established, and that those policies should be led by the use of empirical screens.

What is screening? The ability to flag unlawful behavior through economic and statistical analyses is commonly known as screening. A screen is a statistical test based on an econometric model and a theory of the alleged illegal behavior, designed to identify whether collusion, manipulation or any other type of cheating may exist in a particular market, who may be involved, and how long it may have lasted. Screens use commonly available data such as prices, bids, quotes, spreads, market shares, volumes, and other data to identify patterns that are anomalous or highly improbable.

Over the last few years, economic analysis in general, and empirical screens in particular, have become increasingly important in cases of conspiracies and manipulations, a trend detailed for example in Abrantes-Metz & Bajari (2009 and 2010), and Hüscheleth (2010). Competition authorities and other agencies worldwide have begun using screens to detect possible market conspiracies and manipulations, and defendants and plaintiffs have begun adopting them as well.¹

Though screens have gained significant popularity and adoption over the last five to eight years, with a track record including successes such as the flagging of the LIBOR conspiracy and manipulation, some competition authorities are still reluctant to adopt these empirical tools. Concerns often relate to “too many resources are required” or “lack of robustness” of current screens, or simply “screens don’t work,” among others discussed later in this note. In my view, these arguments against screens though understandable are misplaced.

As this note will make clear, the effectiveness of screens should, by now, largely be beyond dispute. Can screens flag illegal behavior or not? And have they already done so? Yes they can, and yes they have already flagged large scale matters multiple times, such as on LIBOR which is perhaps the largest conspiracy and manipulation of its type ever uncovered.

Why then are they not used more frequently by competition authorities worldwide, when agencies in many other areas use these tools for the detection of manipulation and other types of fraud? Well, one reason is that the use and successes of screens at the current level of technic are still fairly recent, particularly in antitrust. As a consequence, their worldwide adoption may take some time. Additionally, in some markets data may be difficult to gather which is necessary to employ screening. But in my view, the most fundamental reason is a culture of cartel detection among some competition authorities which

¹ Surveys of screening methodologies and their multiple applications can be found in Harrington (2006 and 2008) and Abrantes-Metz & Bajari (2009 and 2010). The use of these methods in antitrust litigation is detailed in the American Bar Association’s *Proof of Conspiracy under Antitrust Federal Laws*, which specifically describes in chapter VIII the role of the economic expert in proving a conspiracy and details the use of screens in this context. Abrantes-Metz & Sokol (2013), and Abrantes-Metz, Bajari & Murphy (2010) make the case for the use of screens in corporate antitrust compliance programs.

remains largely passive and reactive, rather than more aggressive and proactive, sometimes taking the view that “if my leniency program is so successful, why should I try and do anything else to detect cartels?”

This note will directly address these and other concerns expressed on the use of screens. It is organized as follows. Section two reviews the basics of screening, both structural and empirical, and their significant successes. In section three I review leniency programs and their successes, and focus on the value added of screens with respect to leniency in section four. Section five illustrates the arguments made in the previous sections on the use of screens with the flagging of the LIBOR conspiracy and manipulation. A review and detailed discussion of the main criticisms on the use of screens is covered in section six, and section seven concludes.

2. Screening Methodologies

2.1 Screening Basics

There are essentially two different types of economic analyses pursued with the objective to flag the possibility of a conspiracy (Harrington (2008)). The first can be classified as a “structural approach” and it looks at the structure of the industry at hand “scoring” the likelihood of collusion based on factors such as homogenous product, too few competitors, stability of demand, and other commonly used collusive markers.²

The second type of economic analysis in cartel detection is empirical and uses what has become commonly known as “screens,” or sometimes “empirical screens.” These analyses use time-series, cross-sectional data, and/or panel data sets on variables that measure market outcomes, including prices, volumes, and market shares to detect potential anticompetitive behavior. This is called a “behavioral” or “outcomes” approach, in which economists look at markets’ and participants’ behavior as translated into observable data and apply screens for conspiracies and manipulations to address whether the observed behavior is more or less likely to have been produced under an explicit agreement. An example of a market monitoring program combining both components is that put forward by the European Commission in 2007(European Commission (2007)).

2.2 Structural Screening

Examples of the literature contributing to the screening structural approach include research on factors related to cartel duration, such as Marquez (1992), Dick (1996), Suslow (2001, 2005), and Levenstein & Suslow (2006, 2010).

Most recently, and following this literature, Abrantes-Metz, Connor and Metz (2013) estimate a cartel duration model and, among other results, find that cartels first detected by the U.S. Department of Justice or the European Commission tend to be longer-lived, likely because those detected by other jurisdictions are primarily follow-ups of related larger and older cartels first uncovered in the United States or Europe; bid-rigging cartels tend to be longer-lived than others, while cartels distributed across geographies tend to be shorter-lived; cartel durations are increasing in the size of a cartel’s affected sales and sanctions; industries such as Petroleum & Coal, Finance & Insurance, and Food, Feed, Tobacco & Transportation have shorter-lived cartels, while industries such as Electronic Products have longer-lived cartels; the state

² A general list of these factors is further detailed in “Proof of Conspiracy under Antitrust Federal Law (2010)”, in the chapter dedicated to the role of the economic expert. See Proof of Conspiracy under Antitrust Federal Law, American Bar Association Editions, April 2010, Chapter VIII. A non-exhaustive “check list” of characteristics that influence the susceptibility of a market to tacit or explicit collusion is: number of firms and market concentration; differences among competitors; product heterogeneity; demand volatility; barriers to entry; benefits of cheating; transparency and multi-market contact.

of the economy can impact the duration of a cartel as well; and cartels where the leading firm has a market share of at least 40% have longer durations.

Studies of this type focusing on the identification of factors correlated with cartel duration are important. They assist in screening for conspiracies through the identification of characteristics predicting the higher likelihood of a successful (measured by long duration) cartel, which in turn should be used by competition authorities worldwide to screen for anti-competitive behavior. The relevance of this type of studies to enhance antitrust enforcement has been recognized by many, including Grossman (2004), though comparisons across studies of this nature should be taken with care.

An example of this type of approach was developed in Great Britain, at the Office of Fair Trading (OFT). The OFT empirically identified industry-level variables that predict cartel activity, using a data set of DOJ's price-fixing cases since 1994, and European Commission's price-fixing cases since 1990 (Grout and Sonderegger (2005)). The OFT tried to predict the incidence of cartels with industry level data, and concluded that industry turnover, cost measures, concentration measures, entry barriers, and employee costs, among others, help explain the probability of collusion in an industry.

Another example of the use of a structural approach comes from The Netherlands competition authority, in which economic indicators are used to flag possible cartels, and have successfully done so on a regional shrimp cartel.

2.3 Empirical Screening

Though important, a structural approach is typically insufficient particularly when quality data are available, and it may also lead to too many false positives. In cases where the existence of an alleged conspiracy is in dispute, a behavioral or outcomes oriented approach will be needed. This approach develops and implements (empirical) screens.

Broadly speaking, empirical screens for collusion used in the literature employ two strategies. 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 a roulette is roughly .5 percent. During her shift, a roulette dealer may see a handful of players win 5, or even 7, times in a row. However, the probability of winning 20 times in a row is almost zero (though not impossible). 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 idea of a control group. A somewhat extreme example illustrates the idea. In the 1980s, organized crime in New York City operated a concrete club that rigged bids on contracts over \$2 million. During the 1980s, 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, relatively few of those 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, we are forming a control group for New York by using prices in other cities as a basis for comparison. But most collusion is not this blatant.

Though screens can be very powerful, these are econometric tools, with all the usual caveats, and they may potentially be misused. In my view, we can think of two golden rules when designing and implementing screens that need to be kept in mind. These rules should be obvious when stated, but may sometimes be forgotten. First, "one size does not fit all," and second, "if you put garbage in, you get garbage out."

The first screening rule states that a screen needs to be designed or at least adjusted to the situation at hand. Just because a given set of variables and model specification prove highly effective when estimating the demand for bread, it does not mean that those same variables or specifications work when estimating the demand for cars. In turn, the second screening rule states that, as is always the case in empirical work, a screen is only as good as the choices of what is put into it (Abrantes-Metz (2011) discusses in further detail issues related to the development of screens).

In general, six requirements are key to developing and implementing a good screen:

- i. An understanding of the market at hand, including the nature of competition and the potential incentives and opportunities to cheat—both internally and externally—to a firm;
- ii. A view of the likely nature of cheating;
- iii. A view of how cheating will affect market outcomes, and in particular, the available data;
- iv. A set of statistics based in an econometric model, capable of capturing both the implications of cheating as well as ordinary, natural relationships between key market variables;
- v. The identification of an appropriate non-tainted benchmark against which the evidence of cheating can be compared; and
- vi. Empirical or theoretical support for the screen.

There are particular collusive markers which may be expected to occur during a price-fixing or bid-rigging conspiracy which include, but are not limited to:³

- i. Prices that are high and have low variance; prices that are unresponsive to changing market conditions, and those representing a structural break which cannot be explained by regular market conditions; or similarly, prices which do not seem to change in response to market structural breaks; prices which are not responsive to cost changes.
- ii. Bids across competitors which are highly correlated even after controlling for common legitimate factors among them such as costs and number of competitors; and bids which do not appropriately reflect costs.
- iii. Market shares that are stable over time among cartel members, also presenting negative serial correlation which reflect such stability; absence of rotation of customers among cartel members over time.

Very recently in 2008, empirical screens flagged the possibility of a conspiracy and manipulation of the USD LIBOR (“LIBOR”) by major worldwide banks, as in Wall Street Journal articles April and May 2008 on the topic, Abrantes-Metz, Kraten, Metz and Seow (2008, 2012), and followed by empirical evidence provided in Snider and Youle (2010), Abrantes-Metz, Judge and Villas-Boas (2011) and Abrantes-Metz & Metz (2012). The initial 2008 screens preceded worldwide investigations on the matter which became public in March 2011. Only late in the Spring of 2011, did one of the LIBOR panel contributing banks, UBS, file for leniency with the U.S. Department of Justice (“DOJ”). This is how screens should work and how they can supplement and enhance leniency applications. The example of LIBOR will be discussed in further detail in section 5.

³ The U.S. Department of Justice has identified a set of pricing patterns that are intended to help identify collusive behavior. See U.S. Dep’t of Justice, Antitrust Division, *An Antitrust Primer: Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For*, at <http://www.usdoj.gov/atr/public/guidelines/primer-ncu.htm> (“DOJ Antitrust Primer”).

Screens main purpose should be for detection, but they can have multiple applications in litigation and also in the pre-litigation, as explained and exemplified in Abrantes-Metz and Bajari (2009 and 2010). The ongoing litigation on an alleged conspiracy and manipulation of LIBOR provides an example of the use of screens for detection by agencies worldwide, by plaintiffs, by defendants, and internally to companies in their compliance programs.

3. Leniency Programs and their Successes

Detecting cartel behavior is a difficult task for competition authorities. Traditional detection methods involved a proactive policy to evaluate pricing strategies, pricing stability, and opportunities for competitors to meet and reach agreements. Since the late 1990's, the success of the DOJ's corporate leniency program and the development of the Amnesty (or Leniency) Plus policy have for the most part replaced other methods of cartel detection existent prior. These were also accompanied by significant increases in penalties and more extensive use of jail time.

These programs have resulted in numerous criminal investigations in industries such as chemicals, computer components, and auto parts, among others. Billions of dollars in corporate fines have been generated since then, as well as incarceration of numerous corporate executives.

In Europe the experience is similar. After launching its leniency program in 1996, and a revised version in 2002, the European Commission received a large amount of leniency applications and provided partial or full leniency in 45 of 50 cartels from 1998 through 2007 (Riley (2007)). South Africa receives on average three leniency applications a month (more than contemporaneous U.S. rate). In Spain, on February 28, 2008, the day the leniency program was launched, there were seven applications received (Harrington (2010)).

What contributes to increased detection due to leniency? There is an increased likelihood that the cartel will be uncovered by the authorities, there are clear and reasonable legal standards to prove the existence of a conspiracy, and penalties are large.

On the level of the penalties, some are of the view that these should be increased to at least five times the current levels in order to effectively deter cartel formation (Connor and Lande (2012)). There are also concerns that the increased jail sentences imposed by the DOJ may make it less likely that non-U.S. citizens' defendants will continue to enter into plea agreements with the DOJ, preferring to take their chances with INTERPOL checks at airports and threats of extraction (Klawiter (2012)). These are factors that need to be taken seriously into account when designing and adjusting a leniency program.

4. Limitations of Leniency and Value Added of Screens

While leniency programs in the U.S. and in Europe have been very successful for competition authorities, many cartels may still remain undetected – how many, we do not really know, we can only guess. But the very fact that leniency applications continue to be filed at high rates is suggestive evidence that collusion still occurs. Leniency programs do present shortcomings and opportunities to be enhanced and complemented by other detection tools such as screens.

A clear observation from the track record of leniency programs is that investigations initiated by leniency seem to be concentrated in a handful of industries. For example, in the late 1990's there as a concentration of investigations in the food and feed industry, followed by the vitamins industry, and then by the chemical industry. The degree of concentration has only increased throughout the 2000's, focusing heavily on the electronics/computer parts industry, the air cargo/passenger industry, the automotive parts industry and most recently, the financial services industry (Klawiter (2012)).

This high level of concentration may in fact be driven by the DOJ's Leniency Plus program. Under this, if a company being investigated for one cartel voluntarily provides evidence of a different cartel, it will not only receive full leniency for the second cartel but also an additional discount against any fines owing to the first violation. This creates an incentive for companies to be the first to report other cartels: companies know that the likelihood these will be uncovered down the road is very high given the ongoing investigations in the first market, so better to be the first to report in the second and third markets.

The DOJ's Leniency Plus program has enhanced cartel detection and has also helped focus scarce investigatory resources more efficiently. But on the other hand, by focusing such resources on these industries, it is arguably leaving cartels in other industries undetected.

From a deterrence and detection perspective, resources can and should be devoted to carefully developed and implemented economic analyses, namely screens, so that markets not delineated by Leniency Plus can also be analyzed for possible collusion. This would, at relatively low cost, enhance both leniency and Leniency Plus programs.

Moreover, it is possible that leniency programs suffer from an additional selection bias, beyond the one described above due to Leniency Plus. Leniency is likely to become a more attractive option precisely when the cartel is close to being discovered, or close to breaking up, possibly because it has become fairly ineffective. In short, leniency is less likely to be successful in identifying very profitable and effective (meaning, socially costly) cartels. Screens, on the other hand, are more likely to detect cartels which have the most market impact, i.e., the most effective and profitable cartels. Hence, screens may enhance cartel detection and leniency in general through the detection of potentially more harmful cartels in other industries. It is not just a matter of how many cartels are detected by screens, but which.

Additionally, screens will enhance deterrence. If likely cheaters know that their market data are being monitored, they will know there is an enhanced probability that they will get caught. This may ultimately discourage the cartel from being formed in the first place.

Can cartel members also become more sophisticated and learn how to disguise their behavior more effectively, thus beating the screen? Yes, they can, but if a cartel is to be successful from its members' perspective and increase profits, it *must* have a market impact, and that impact must (at least in principle) be detectable. It is true that such market impact may be more difficult to detect and may require enhanced screening tools, and continuous improvement of such tools. But the need for enhanced screening should not in any way deter authorities from using these tools. Investigatory tools are continuously improved in all other areas to detect infractions and crimes, why should it be any different with cartels in antitrust?

My view is that it should not be different, but the fact is that it has been different. One justification is that antitrust authorities worldwide have, for the most part to date, taken a reactive policy position to cartel detection when almost exclusively relying on leniency programs. True they were proactive in designing such programs, but the nature of these programs is, in and of itself, passive. Authorities wait for a cheater to voluntarily step forward and apply for leniency. Notwithstanding the importance of these programs, they are passive and should not be the almost exclusive tool to detect cartels. The detection of illegal behavior is usually more proactive in other areas of our society, and so should it be in antitrust.

Other concerns with leniency programs relate to their lack of flexibility. These programs are clearly delineated with little discretion to give full or partial leniency to an application. Cartels are viewed as very serious infractions, among the worst forms of competitive misconduct, but authorities around the world are willing to let many wrongdoers be forgiven. Though some degree of leniency may well be needed, a modern anti-cartel detection program needs to rely on additional proactive tools. Well-developed screens will pass a cost-benefit analysis and can be successfully implemented.

A proactive policy by competition authorities could be composed of both structural and behavioral approaches, with the later centered on empirical screens (Friederiszick and Maier-Rigaud (2008)). It is recognized that structural screens may lead to too many false positives – because there usually are many omitted factors influencing cartel formation (Harrington (2010)), and as a consequence, only a small fraction of markets and agreements verifying the check list of factors likely to correlate with collusion, may be engaging in a cartel. Despite this, structural screens may still add value, particularly when paired with empirical screens.

The purpose of screening is not to deliver the final evidence based on which colluders will be convicted, but instead to identify markets where empirical red flags are raised and which are worth further investigations. In doing so effectively, screens will induce cartel members to come forward and file for leniency, and they will also assist in deterring cartel formation.

Recognizing the limitations of leniency programs and the advantages of screens, several antitrust authorities have started to search for alternative approaches to detecting conspiracies. Screening methods and leniency programs exhibit strong complementarities with respect to cartel deterrence and detection which can produce synergetic outcomes. The use of these complementary tools is, in my view, the natural next step to identifying markets where collusion may have existed, or is currently underway, and in strengthening anti-cartel programs worldwide.

I will end this section with one important point. Some of the largest conspiracies, manipulations and frauds uncovered to date – Madoff’s Ponzi Scheme, the NASDAQ alleged conspiracy, stock options backdating and springloading, and LIBOR conspiracy and manipulation (leading to the launch of investigations of benchmarks worldwide), and most recently, the alleged conspiracy and manipulation in the foreign exchange markets – have two common components: they were all initially flagged by empirical screens, and none by competition authorities or other relevant agencies. Instead, these screens were developed by reporters, academics, consultants and market experts. Competition authorities should adopt similar techniques to deter and detect cartels; after all, they are already being used to detect manipulations and fraud in other contexts by other agencies.

5. Lessons from LIBOR for Detection and Deterrence of Cartels

Worldwide investigations on the alleged conspiracy to manipulate the U.S. dollar London Interbank Offered Rate (“LIBOR”) and other currency-denominated LIBOR, as well as similar benchmarks such as Euribor in Europe and TIBOR in Japan, have been making news. Most recently, investigations to Platts Oil Benchmarks, ISDa Fix benchmark for swaps and foreign exchange rates benchmarks have also been underway.

What is LIBOR? On a daily basis, the 16 (then) participating banks are surveyed by the British Bankers Association and submit sealed quotes which answer “[a]t what rate could you borrow funds, were you to do so by asking for and then accepting interbank offers in a reasonable market size just prior to 11:00 a.m. London time?” LIBOR is computed by averaging over the middle eight quotes, discarding the four highest and the four lowest.

From a structural point of view, it should have been clear to the relevant authorities and institutions that the LIBOR setting has many ingredients facilitating cheating, mainly:

- i. The number of surveyed banks is small for the dimension of this market, which facilitates coordination, even more when participants have multimarket contact, as favors can be traded across different markets;

- ii. Submissions are based on estimates rather than actual transactions, which are significantly easier to manipulate; in addition, they are not verifiable against any actual transactions, i.e., complete lack of an auditing process;
- iii. Quotes are submitted sealed but are publicly disclosed daily which facilitates potential coordination across banks, given that monitoring behavior and punishment of deviations from collusive agreements become easy to implement;
- iv. Banks' trading desks have financial interests benchmarked to LIBOR, and therefore have a direct interest in the value that LIBOR takes. Not only knowing which direction is LIBOR going to move on a particular day, ahead of the market, but also having the ability to move LIBOR to the desired level to benefit portfolio or trading positions, can provide the motive to manipulate and collude to benefit trading positions;
- v. Banks' quotes are important signals of their financial health, as none of them wants to admit it can't borrow cheaply; and
- vi. Banks oversaw themselves through their trade association, the British Banks Association (BBA).

Together, these provide the means, motive and opportunity to collude and manipulate LIBOR, the structural component of screening and described in the previous sections. In and of itself, this should have been an important red flag for possible illegal behavior, but it went by apparently unnoticed for decades, until empirical screening provided the additional evidence which apparently ended up getting the authorities' attention.

The empirical screening of LIBOR occurred in 2008, several decades after LIBOR was born. Arguably, LIBOR investigations were triggered by these findings. The WSJ first looked at LIBOR and found suspicious patterns in April and May of 2008. Its screen showed that since January 2008, the banks' individual quotes were too low compared to what their credit default swap spreads indicated. Abrantes-Metz, Kraten, Metz and Seow followed with a working paper in August 2008 which noted that: LIBOR was completely constant day-in and day-out for many months prior to the financial crisis, while other comparable rates such as the Federal Funds Effective Rate were not; most banks' quotes were identical to each other, while other market indicators such as their pricing in the capital markets, indicated differences (even if slight) across banks; LIBOR did not respond to increasing risk at least since late Spring and early Summer of 2007. In fact, we saw signs of possible collusion dating back to prior to financial crisis.

Both the WSJ articles and the Abrantes-Metz et al (2008) analyses used screens to flag such anomalies. Through settlement agreements with some of the banks, we know now that investigations on LIBOR were initiated in October of 2008, though they only became publicly known in March of 2011.

Other research on LIBOR was then conducted by Snider & Youle (2009 and 2010), by Abrantes-Metz, Villas-Boas, & Judge (2011), and by Abrantes-Metz & Metz (2012). Snider and Youle present findings supporting their claim that banks' LIBOR quotes are difficult to rationalize by observable cost measures for the period under study, including a given bank's quotes in other currency panels. They also introduce a model in which banks' possession of LIBOR indexed contracts induces them to produce LIBOR quotes that are clustered around discontinuities. Using this model the authors show that there was a severe clustering in the USD LIBOR for the three month maturity throughout 2009. Snider and Youle further try to quantify gains from such behavior and present results showing large exposures to LIBOR by several banks through their interest rate derivative portfolios, allegedly enabling them to profit from the rapid decline of LIBOR starting late in the Summer of 2007. The authors argue that these exposures may have been the incentive behind a deliberate misreporting of LIBOR quotes by the banks.

Abrantes-Metz, Villas-Boas & Judge (2011) show that Benford's Law, a mathematical law commonly used to detect fraud in other contexts, is violated for the USD LIBOR from early 2006 through the Summer of 2007 and with continuing anomalous patterns throughout 2009. In 2012, Abrantes-Metz & Metz followed with an analyses similar to bid-rigging to explain that, given that LIBOR quotes are submitted sealed, and that they are supposed to be idiosyncratic to each of the banks as forecasts of their own interbank borrowing costs, simultaneous moves by a large number of submitters from one day to the following to the exact same number are more consistent with explicit rather than with tacit collusion. This article is discussed in further detail in section six, as an example of our empirical screens can be used to attempted to distinguish explicit from tacit collusion.

There seemed to have been a lack of understanding by the relevant authorities for the incentives and opportunities to cheat, and to the clearly anomalous data patterns. The internal auditing procedures at the banks applied to LIBOR submissions were either nonexistent or clearly inadequate. Had such internal mechanisms based on screens been in place, banks would have been able to detect and hopefully deter problem submissions, as argued in Abrantes-Metz & Sokol (2012). And had these same tools been applied by the relevant agencies, they would have flagged the anomalies perhaps years earlier, and before the successful screens applications by the WSJ and Abrantes-Metz et al (2008).

In addition to detection, the critical role of screens in compliance is recognized and stressed in the settlements reached between the regulatory agencies and the three banks to date on this matter. In fact, as part of these settlements, authorities demanded banks to implement these monitoring and auditing tools internally.⁴

It is reasonable to expect that these types of requirements for enhanced monitoring may become a reality in other areas as well, not just internally to companies, but externally also in the context of the ongoing reform of financial benchmarks worldwide lead by the U.S. CFTC and the U.K. Financial Conduct Authority ("FCA") through the International Organization of Securities Commissions ("IOSCO"). At least it is reasonable to expect that corporations will start to seriously consider the adoption of these methods, not only to protect themselves against cheating within the corporation, but also against possible cheating up- and down-stream.

LIBOR is the perfect example of how screens can be effective, proactive, add value, lead to leniency applications and Leniency Plus applications in a variety of other markets, lead to uncovering of direct evidence, and have a material impact on cartel detection and deterrence.

- i. Empirical screens first flagged the possibility of a manipulation and conspiracy of LIBOR and signaled the need for regulatory agencies to inquire;
- ii. Had structural screens been applied early only, they would have raised various flags given the structure of the LIBOR setting and the incentives to cheat which would have prompted the use of empirical screens earlier on;
- iii. Investigations were started shortly after the empirical evidence put forward through screening, in October of 2008;
- iv. Given (iii) and the fact that the flagging was motivated by empirical screens, leniency applications were generated years into the investigation and a few short months after these became public (public knowledge of these investigations happened on March 15, 2011, through a disclosure in UBS's 10-k, to which UBS followed with a leniency application in May of the same year);

⁴ As an example, the Settlement Agreement between Barclays and the U.S. Department of Justice, the U.S. Commodities Futures Trading Commission and the U.K Financial Services Authority requires the following procedures with respect to Barclay's LIBOR submissions (Barclay's Settlement Agreement, pages 37-38).

In fact, it is likely that the LIBOR manipulation and conspiracy may never have been uncovered had screens not been used. It is particularly unlikely that it would have been identified through leniency – contributing banks would have had no incentive to report on any alleged cheating since profits derived from these may have been very substantial. They did not report for many years, while the alleged behavior seemed to have been ongoing, why would they do so at any other time?

- i. LIBOR investigations have led to investigations into many other similar rates and benchmarks across the board, and to leniency and Leniency Plus applications as well;
- ii. LIBOR investigations have led to a substantial effort worldwide through IOSCO to reform financial benchmarks, with the objective of enhancing their robustness and reliability, i.e., having in mind the structural screening approach, to change the structures and incentives, detection and deterrence of similar future behavior;
- iii. Enhanced internal monitoring programs have become required by the regulatory agencies involved in the investigations, and these also require the use of screening tools;

But how about improving anti-cartel policies? After all, and based on public information, illegal behavior may have been ongoing for a very long time and have been widespread, yet it was completely missed by all relevant agencies and regulatory bodies worldwide — shouldn't this imply that an improvement is also needed at this level? If we were to take a similar position here as many competition authorities have with respect to other detection tools and how ineffective those may be in their views, what would the LIBOR scandal imply for the effectiveness of currently reactive anti-cartel policy tools?

There have always been those who are naturally skeptical that simple empirical analyses can be brought to bear in complex markets. Hopefully, the LIBOR scandal will settle the question of whether screens should be more vigorously applied and move the discussion to how that needs to happen.

6. Addressing Concerns Raised on Screens

This section focuses on the main concerns that I commonly hear on why some agencies may not use empirical screens. It addresses each of these concerns separately and explains why, though some of these are understandable, they may still reflect a misconception of either screening techniques or/and of how screens have been recommended to be used.

Some of the arguments also place screens to a standard of proof that no other screening methods in other areas of research neither any other tools to detect cartels are required to satisfy, representing in my view unfair arguments to dismiss screens. Or simply, some of the arguments may just as well reflect a culture of reactive anti-cartel detection policy. The major concerns and counterarguments as presented below and should not dissuade agencies from actively adopting screens.

6.1 “Screens Have High Error Rates, Erroneously Identifying Cartels Where None Exit”

Even a screen based on a solid theory of cheating and properly designed and implemented can still produce erroneous conclusions, just as is the case with any other statistical test: it may indicate that cheating may have existed where one did not (type I error), or it may fail to flag cheating which did exist (type II error). Again, just as we would not argue that statistical tests are useless because they have margins of error, we should not do the same to screens. The hope is that types I and II errors will not occur with high likelihood, though there is certainly a trade-off between the two.

Screens are very useful for flagging or identifying unusual patterns in outcomes but they should not be expected to provide the final proof that any wrongdoing did or did not take place. And they certainly

present limitations on addressing the *intention* of particular wrongdoing, though this may well depend on the specific case at hand.

Examples already exist in which the power of screens is tested. One of such examples was performed by the Italian Competition Authority, as documented in Esposito and Ferrero (2006). In this paper, the authors tested the power of the variance screen for prices to detect previously known illegal conspiracies. In particular, they pose the question of whether a price variance screen (as initially proposed in Abrantes-Metz, Froeb, Geweke and Taylor (2006)) could have identified collusion in two well-known Italian cartel cases involving gasoline and diesel on the one hand and in baby milk on the other. They also ask whether such a screen could have correctly identified who was involved and during which time period. And the answer to both questions is “yes:” the screen would have correctly identified these two cartels before the Italian Competition Authority did. Another application in which the power of screens was demonstrated involved the German cement market, as discussed in Hüschelrath and Veith (2011). The authors show that buyers could have detected this cartel ahead of the launch of investigations, through the use of screens for structural breaks.

It is true that more of these studies should be undertaken, but we need to be conscious that the types of screens here described, were developed and/or implemented over the last five to ten years, while more attention to these methods has only been more significant over the last five years. Not a whole lot more of testing could have occurred in this short time period.

In addition, how can we really compare screening errors to leniency errors, when we also do not know the latter? Do we know how many of the leniency applications received by the agencies are actually pursued and proven to be successful? In order to dismiss screens “because they have too many false positives,” we would need to know how many such errors do leniency applications (and other detection tools for that matter) really have. It seems to me that it is critical to have this information in order to disregard screens in favor of leniency or other tools.

Yes, cartel screening will have some errors, but doesn’t medical screening have as well? Screening is the beginning not the end of an inquiry. We do not say that medical screens lack value, even if they contain a certain rate of errors – why should we hold cartel screening to an inexplicably high standard not satisfied by any other screening procedures?

6.2 “Screens Cannot Distinguish Explicit from Tacit Collusion”

Related to the point above is the concern that screens may have difficulty in distinguishing legal tacit collusion from illegal explicit collusion. This is a fair point, but it is important to stress that it is not universally true: it depends on the situation at hand. But even in those cases where it is true, why should that disqualify screens? Why hold antitrust screens to a standard that no other screens – such as medical – are required to attain? When a medical screen based on an ultrasound detects a node on a thyroid, that raises a flag and the doctor requires further investigation, namely, a biopsy. The biopsy will ultimately determine (with some error rate) whether the node is malignant or benign. Does anyone want to argue that because the initial screen cannot distinguish malignant from benign, it is therefore useless? Then why make the analogous argument about an antitrust screen?

Back to the industrial organization argument, almost exclusively this criticism of screens refers to the well-known result that the same market equilibrium of reduced output and higher price can be attained either through a tacit understanding between competitors or through illegal collusion. Though this is obviously true, as an argument against screens it forgets that a good screen will examine not only *what* equilibrium was attained but also *how* it was attained. It is the dynamics towards the new equilibrium of

lower output and higher price which may indicate whether such an outcome was more likely to have occurred through tacit or explicit collusion.

In cartel screening, even if some of the flagged cases are later found to reflect tacit rather than explicit collusion, and only a few are actually illegal, what is the problem with that? Why should false positives invalidate antitrust screening but not medical screening?

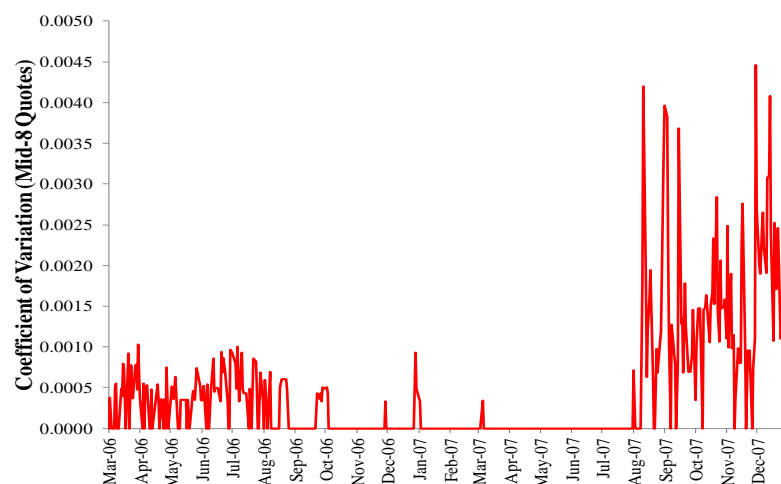
Below I will discuss three examples of screens to explain how an empirical look at the data can assist placing higher likelihood that the underlying behavior was due to explicit rather than to tacit collusion.

Example 1: USD LIBOR

In order to clearly illustrate this important point, below I will present a detailed analysis on LIBOR, first put forward in Abrantes-Metz & Metz (2012), in which I am my co-author attempt to sort out whether explicit rather than tacit collusion was more likely on LIBOR setting. While I have always argued that a purely empirical analysis of market outcomes can never be the final proof of illegal behavior, under particular circumstances screens can indeed provide additional evidence to assess the more likely form of collusion.

In Abrantes-Metz & Metz (2012), we calculate the coefficient of variation for the determining set of LIBOR quotes each day;⁵ which measures the dispersion or variability in the daily quotes of the participating banks. If the contributing banks were submitting unique quotes each day (which just happened to average to the same level day after day), the coefficient of variation would be large. But if the banks were all submitting essentially the same quote, it would be low, and in the extreme case where the middle eight quotes were identical, the coefficient of variation would be 0. Figure 1 from our paper presents this measure. It is clear that from early August 2006 through early August 2007, the middle eight quotes are essentially identical day in and day out. This, again, seems highly anomalous.

Figure 1: There is Almost No Variation Across the Middle Eight Quotes from August 2006 Through August 2007



⁵

Recall that the coefficient of variation is the standard deviation divided by the mean. The mean, of course, is just the Libor level itself. We exclude from this computation the quotes we know did not enter the Libor computation on each given day.

How can we account for the stability of LIBOR and the convergence among the quotes? Let's consider some possible explanations. One possibility, of course, is that at least some of the banks were *explicitly colluding*. That is, they were in contact with each other and agreed in advance on a virtually identical quote to submit.

Another possibility is that there was *tacit collusion*. Tacit collusion, or conscious parallelism, exists when there is strategic coordination between participants. Each participant attempts to optimize its strategy with consideration as to how the others may respond and adapts its actions based on learning from others' strategies. This can result in convergence of individual outcomes. Consider, for example, the phenomenon of equal gasoline prices across stations on each corner of an intersection. While that might be the result of explicit collusion, it might also be the result of tacit coordination.

Yet a third possibility is that convergence across quotes represents a non-cooperative outcome. Perhaps the banks are each independently reacting to (or anticipating) a common market driver. Without any consideration of how the other banks may react, the banks may individually arrive at the same number. Perhaps, in other words, many of the participating banks truly had identical borrowing costs, or at least expected to have identical borrowing costs at particular maturities.

Each of these—explicit collusion, tacit collusion, or non-cooperative outcomes—may result in an empirically similar outcome in the LIBOR setting: convergence across quotes. The question we turn to now is whether they are empirically *identical*. Can screens draw any distinctions among these?

Actually, these three different theories—explicit collusion, tacit collusion, and non-cooperative outcome—lead to subtle differences in empirical predictions in the LIBOR setting. Consider first the possibility that the convergence in quotes was simply a non-cooperative outcome; that the participating banks independently arrived at the same quote for some common legitimate fundamental reason. To accept this explanation we would have to understand why these banks, which differ in important ways, should nevertheless have identical borrowing costs. Not just “similar” borrowing costs, but *identical*. The member banks have varying sizes, varying asset portfolios of varying risk profiles, and varying liability structures. They participate to different degrees in different market segments. It seems highly unlikely that they should then have fundamentally identical borrowing costs, though we may expect them to be similar.

We would make a second point. To accept the non-cooperative outcome explanation we need to understand why the quotes weren't always common. In other words, as shown in Figure 1 above, why did the coefficient of variation suddenly drop to 0 in the beginning of August of 2006? And why then did it abruptly increase after August of 2007? We know that the structural break on August 9, 2007 was due to particular events on that day which triggered the “official start” of the financial crisis.⁶ On that day, LIBOR quotes drastically changed and became immediately different from each other. Which also begs the question of why the triggering of the crisis did not affect banks' quotes equally, if market conditions were the reason why they were identical previously in the first place. What fundamentally changed during the 12 months from August 2006 to August 2007 that could account for this independent convergence?

⁶ On August 9, 2007, there were major news on the realization of a liquidity and subprime crisis: (i) there was a “coordinated intervention” by the European Central Bank, the Federal Reserve Bank, and the Bank of Japan; (ii) AIG warned that defaults were spreading beyond the subprime sector; and (iii) BNP Paribas suspended three funds that held mortgage backed securities.

We require an explanation as to why those costs would be identical for a 12-month window, but not before, and not after.

So the data seem inconsistent with a non-cooperative outcome. That leaves us with two other possibilities. How might we empirically distinguish explicit from tacit collusion? If the banks slowly converged to the same common quote, and then repeated it over and over again, we would see results as in Figure 1 for the most part. But if the collusion were tacit, if the banks were “learning” from the strategic reaction of the other banks, then we would expect to see a transition period in Figure 1 in which the variation of intraday quotes would be decreasing towards zero. We don’t. Instead, we see an abrupt transition to 0.

Further complicating the tacit collusion argument is the fact that the quotes are sealed. Only after LIBOR is computed are the quotes made public. If the banks submitted largely the same quote day after day, and we saw that the other banks were learning and converging toward that common quote, we might more likely ascribe this to tacit, strategic collusion. But if we see that many banks submit a common (sealed) quote one day, and then submit a common but different (sealed) quote the next day, that is more difficult to understand as tacit behavior.

Another justification we have heard from this behavior, and interestingly from regulators investigating LIBOR, is that “the quotes were the same because the banks were all benchmarking against one particular index.” Really? Let’s think this through. If they were benchmarking their quotes against another index, why didn’t they do that before, why only now? And if they switch to such benchmarking on these dates, how did they suddenly come up with such an agreement from one day to the next to do so? Would that still require an explicit agreement among the banks to do so, given that the change in quotes patterns is so sudden?

Table 1 below details the quotes of early August 2006. The quotes not highlighted represent those which were excluded from determining LIBOR on those days. Table 2 summarizes the quotes by listing the unique values that determined LIBOR on those days, and the number of banks that share that quote.

**Table 1: Individual Quotes for 1 Month USD LIBOR
from Early August 2006**

	2006				
	August 3	August 4	August 7	August 8	August 9
BTMU	5.410	<i>5.430</i>	5.370	5.370	5.330
Bank of America	<i>5.400</i>	5.420	<i>5.380</i>	5.370	<i>5.325</i>
Barclays	5.410	5.420	5.370	5.370	<i>5.340</i>
JPM Chase	5.410	5.420	<i>5.380</i>	5.370	5.330
Citi Bank	5.405	5.420	5.360	5.370	5.330
CSFB	5.405	5.420	5.360	5.370	5.330
Deutsche Bank	5.405	<i>5.415</i>	5.365	<i>5.365</i>	<i>5.325</i>
HBOS	5.410	5.420	<i>5.350</i>	5.370	5.330
HSBC	<i>5.400</i>	5.420	5.370	5.370	5.330
Lloyds	5.410	5.420	5.360	5.370	5.330
Norinchukin	5.410	5.420	5.370	5.370	<i>5.340</i>
Rabobank	5.405	<i>5.415</i>	5.370	5.370	5.330
Royal Bank of Canada	5.405	5.420	5.370	<i>5.368</i>	5.330
Royal Bank of Scotland	<i>5.400</i>	5.420	5.370	5.370	5.330
UBS AG	5.405	5.420	5.370	5.370	5.330
West LB	5.405	<i>5.460</i>	5.360	5.370	5.330

Table 2: The Distribution of “Determining” Quotes

		2006				
		August 3	August 4	August 7	August 8	August 9
Value 1		5.405	5.420	5.360	5.370	5.330
	<i>Count</i>	7	12	4	14	12
Value 2		5.410		5.365		
		6		1		
Value 3				5.370		
				8		

For example, on August 3, seven banks submitted the quote 5.405 and six banks submitted the quote 5.410. But then on August 4, twelve banks submitted a quote of 5.420—different from any of the quotes submitted the previous day. On August 7 there were three different values that were part of the “middle eight” quotes on that day, 5.360 (submitted by four banks), 5.365 (submitted by one bank) and 5.370 (submitted by eight banks). And on August 8, fourteen of sixteen banks submitted a quote of 5.370.

One might interpret that as tacit learning: eight banks submitted 5.370 on August 7, and then seven more did on August 8 (with one bank changing its quote away from 5.370). But let’s consider the quotes of August 9. Twelve banks submitted a quote of 5.330. No bank had submitted that quote in the four days prior to August 9; in fact, no bank had submitted that quote since June 30, 2006 when two banks had. Yet, somehow, twelve banks moved to it on that date. This seems inconsistent with the tacit collusion or learning theory, especially when we recall that the quotes are submitted sealed.

And just as was the case with the non-cooperative outcome theory, to accept the tacit collusion theory we would have to understand why there was strategic learning leading to convergence in the period August 2006 through August 2007, but not before, and not after. What was different about those twelve months?

So the data seem inconsistent with tacit collusion as well. That leaves us with explicit collusion as the most likely explanation. Of course, we have repeatedly explained in previous work that the patterns identified through screening are not proof of explicit collusion; but this explanation simply seems more likely than the alternatives. From August 9, 2006 onwards there are a few rare episodes in which a few banks submit slightly different quotes from the majority, but for the most part, and as evident in Figure 2, the group of banks effectively determining LIBOR submitted the same identical quote day in and day out for one year, until August 9, 2007.

Example 2: Undisclosed Major Financial Benchmark

Let’s now look at a second example. Figure 2 below refers to the intraday variation of daily submissions of different groups of banks, for a known (and here undisclosed) benchmark currently under investigation worldwide for possible collusion and manipulation. The numbers charted have been altered and do not reflect the actual numbers in the data, but the patterns of the statistics have been preserved.

In this setting, there are again multiple banks submitting quotes for the computation of this financial benchmark, in a manner comparable to LIBOR. There are particular dates, which I call “setting dates,” which are relevant for many of the contributing banks. These are dates in which resets and maturities occur for derivatives contracts based on this financial benchmark, and there is therefore potentially an incentive to manipulate the financial benchmark upwards or downwards depending on the banks’ positions and clients. These dates are set regularly throughout each calendar year. The third of the set of three consecutive dates is the most important, but some of the contracts may in fact target up to 2 days prior to that date.

Figure 2.A shows the clear pattern in the submitted quotes. There is a set of banks, called “Group 1,” whose quotes are very different from each other immediately before and immediately after the 3 setting dates. But on the 3 setting dates, these quotes are completely equal to each other! Notice how the quotes for “Group 2” representing all other banks do not show the same patterns. Only Group 1 changes its quotes exactly on the 3 relevant dates, not one day before, and not one day after. Furthermore, it is observed that such convergence in quotes among Group 1 for only 3 consecutive days, and not at least 15 days before or after those 3 consecutive days, never happens outside of those 3 setting days. These data immediately suggest a few questions. Since the differences in intraday variation among the two groups 15 days before and 15 days after the 3 dates are very similar, why are they so different during the 3 setting dates? And during the 3 setting dates, Group 2 continues with the same level of dispersion of quotes while Group 1 has all equal quotes? How likely is it that this would have happened without explicit communication among Group 1 banks?

Figure 2.B below shows another of such dates, in which Group 1 and Group 2 represent two sets of banks with completely equal quotes within each of the respective groups, only on the 3rd and most important of the setting dates, and neither before nor after. Furthermore, that does not happen for all other banks represented in Group 3. And in addition, Groups 1 and 2 may be attempting to influence the financial benchmark in differing directions, potentially one group trying to move it upwards, while the other trying to move it downwards. Again, this is highly unlikely to occur without explicit communication, when it only happens on these key dates. And these patterns recur throughout these relevant dates over several years, until it is disclosed that authorities are investigating this benchmark and starting to find evidence of collusion and attempted manipulation.

Means, motive and opportunity to collude and manipulate, with the empirical evidence to support. Certainly the patterns here observed are much more likely to be the product of explicit rather than of tacit collusion.

**Figure 2.A: Intraday Coefficient of Variation of Bank Quotes
for Undisclosed Benchmark around Setting Dates for Derivatives
Contracts Based on this Benchmark**

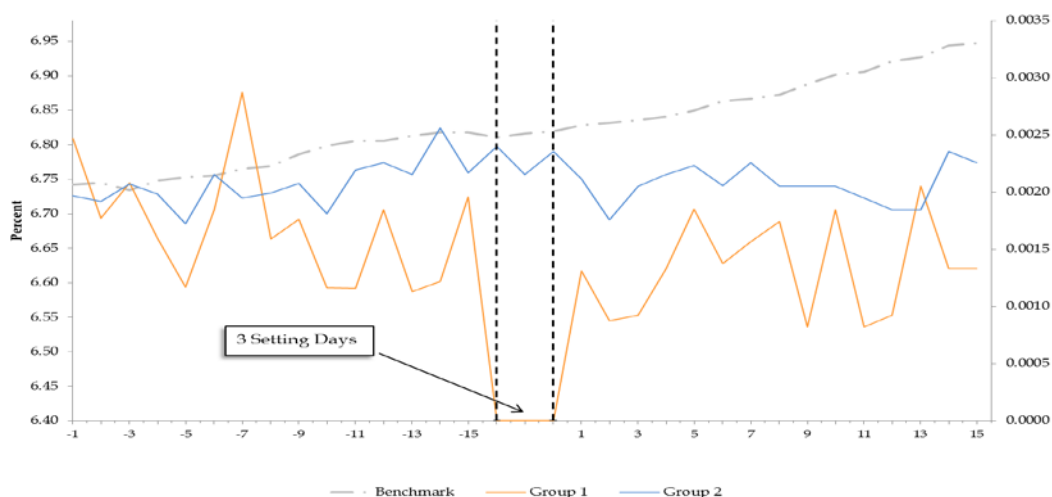
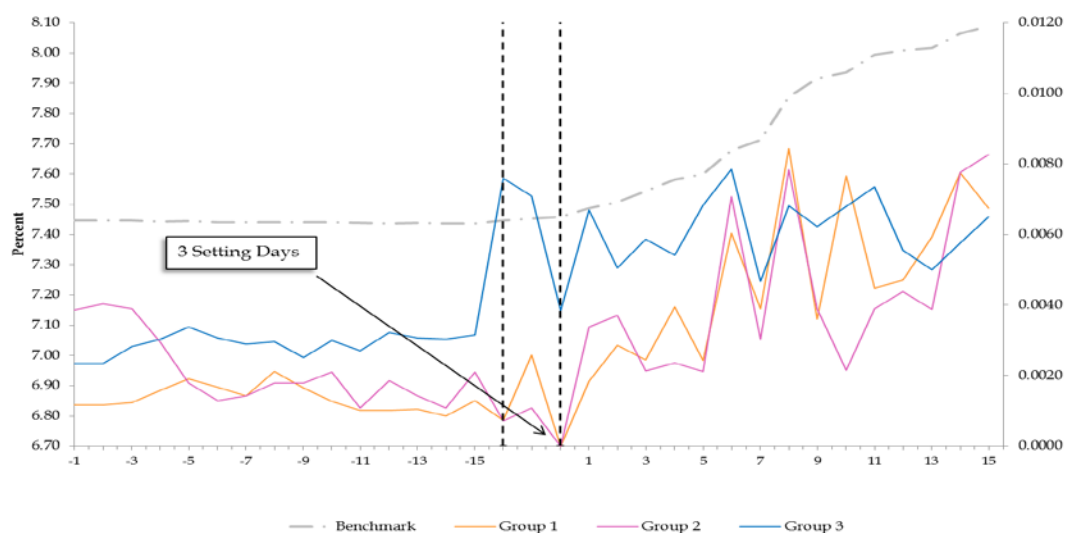


Figure 2.B: Intraday Coefficient of Variation of Bank Quotes for Undisclosed Benchmark around Setting Dates for Derivatives Contracts Based on this Benchmark



Example 3: Canadian Bid-Rigging

In September of 2012, a Canadian reporter flagged the possibility of a bid-rigging, market allocation and price fixing conspiracy in road construction in Montreal (Montreal Gazette (2012)). She noticed that winners frequently subcontracted losers, and that the same companies tended to win in the same regions repeatedly, among other patterns. Granted this could have been reached through tacit agreements, at least in principle, but the frequency of unexpected patterns was very high. But she also ran a simple and very intuitive screen and found important empirical evidence in favor of explicit collusion: that presumably independent competitors submitted sealed bids to an agency and provided the same contact number in their bids! Unexpected certainly, and almost impossible. This clearly points to explicit coordination. But if the reporter was easily able to find this information through publicly available data, why didn't the agency flag this abnormality when the bids were submitted?

Needless to say that these findings generated an investigation and several resignations have already occurred.

6.3 “Screens are Very Resource Intensive, They Do Not Pass a Cost-Benefit Analysis”

It is true that screens will consume resources, but so will any other type of work. It is also true that screens will require more resources than sitting and waiting for a leniency application to be filed, but again, and as explained in detailed earlier in this note, they may well target cartels with differing market effects, and represent a proactive versus a reactive anti-cartel policies.

It has never been my recommendation to implement screens in every market and at every moment in time. That would likely be neither productive nor efficient. The development and implementation of screens has to be smart, focused and strategic. First of all, data need to be available, otherwise empirical screens are not feasible. Second, screens should be applied to markets or industries where the likelihood of collusion is higher (to either already exist or to emerge), either due to the features of the industry itself or

due to recent history or some other type of prior, including a lead from someone or a complaint. And finally, resources need to be put in place to appropriately develop a screen that fits to the situation at hand.

These analyses do not have to involve a massive amount of resources. For example, I find it unlikely that the analysis conducted by the 2008 WSJ articles on LIBOR took more than a few days to put together, or used more than a handful of data series. My 2008 paper on LIBOR also only took less than one week for data to be compiled and results calculated. The Canadian reported who flagged the cartel in road construction in Canada only studied the data by herself for a few weeks and put forward an analysis that seemed convincing to authorities, so much so that an investigation was launched (and evidence of wrongdoing seems to have been obtained shortly thereafter). If screens are so resource intensive, how could reporters and academics run them to flag such large cases?

These are clear examples of screens which did not take long and in many cases were performed by reporters, not expert economists. If they could do this, why can't competition authorities do the same?

Of course screens can on occasion be resource intensive. That was the experience of the Brazilian competition authority, CADE, when it used screens to select from hundreds of complaints of alleged localized gasoline cartels (Ragazzo (2012)). Screens were used to select those cases in which market evidence was the most significant. Out of hundreds of possibilities, 10 were selected through screening, and among those 10, direct evidence of collusion was found for 6 cases. A success rate of 60% would normally be considered quite good. It did take a significant amount of resources to get there, but the other three options were either (i) use even more resources to investigate all of the hundreds of complaints; (ii) randomly select complaints to investigate, which would have been an inferior course of action; or (iii) investigate no cases and just wait for all of these to file leniency application. CADE took the right decision, appropriately applied screens, and consequently had a high success rate. CADE is of the opinion that screens were cost-effective, as they helped focus resources on those cases with the highest likelihood of a market effect. Other agencies should follow the example.

Another successful example of screening was that of the Mexican Competition Authority which used bid-rigging and price-fixing screens to provide empirical evidence for an alleged cartel in pharmaceuticals in Mexico (Mena-Labarthe (2012)). The effort did take significant resources, but it was worth it in the view of the Commission, and furthermore, it was recognized in court as constituting valid evidence for the collusive claim put forward by the Commission.

Though screens can at times become technical and numerically challenging, that does not always have to be the case, especially at the beginning of the process. None of the examples provided above were technically challenging, or else how could reporters have performed most of these analyses?

Another example of a simple first stage analysis is contained in my recent paper on the aluminum market dislocation, from September 2013 (Abrantes-Metz (2013a)). This paper discusses the aluminum market, the structure, the incentives and opportunity to manipulate and collude. For the most part it simply plots the data on prices, quantities and other measures – it cannot get any easier than that – and evaluates them through an understanding of the market itself. Despite its simplicity, I believe the paper makes a reasonably compelling argument for possible collusion.

The purpose of screening is not to deliver the final evidence based on which colluders will be convicted, but instead to identify markets where empirical red flags are raised and which are worth further investigations. They do not have to be overly technical, complicated or demanding. They do have to be smart, focused, strategic and appropriately designed for the case at hand.

6.4 “Screens Lack Robustness, Why Should I Use Them?”

I have always been and will continue to be a believer in the power and the role of empirical screens in conspiracy and manipulation cases, and use them in most litigation cases I am involved in. But it is important to remember that these are econometric tools, with all the usual caveats, and they may potentially be misused. Screens, just like any empirical technique, can be effective only when properly applied; otherwise they risk producing nonsense.

The two golden rules for screens are (i) “one size does not fit all,” and (ii) “if you put garbage in, you get garbage out.” Take the first rule. A screen needs to be designed or at least adjusted to the situation at hand. Just because a given set of variables and model specifications prove highly effective when estimating the demand for bread does not mean that those same variables or specifications work when estimating the demand for cars. We typically do not say “this exercise of using the demand for bread to estimate the demand for cars is useless and imprecise” and therefore abandon econometrics altogether for estimating demand equations.

The observation that a model of bread demand does not make a good model of car demand does not represent an argument against econometrics in general. The basic idea of setting up an equation that explains quantity demanded as a function of price and other relevant demand-side variables, and estimating it using appropriate econometric techniques, remains valid. Instead, the lesson we take is that we need to think clearly about what we want to estimate, the characteristics of the market at hand, and the appropriate set of variables and demand formulation to use so that the technique can be appropriately tailored to the case at hand.

Screens are no different in this regard. It is not a fair criticism to blame the screen when it delivers different results if applied to the levels of variables rather than to their growth rates, when using different benchmarks or different time periods, or when either controlling or not for changes in other factors. Such choices represent fundamentals of the empirical specification, they are not “variations on a theme,” and just as no “regression model” would be robust across all of them neither should we expect “screens” to be. These are **key** decisions to be made when applying an existing screen, for whatever purpose it will be used.

This also leads us to the second golden rule: As is always the case in empirical work, a screen is only as good as the choices of what is put into it. Expertise is needed when developing and applying a screen. It is critical that the appropriate choices are taken based on sound justifications when designing and implementing an empirical approach to a conspiracy and manipulation case, or any other case for that matter. Screens are powerful, but they are not so powerful that they work “everywhere” across “any” data set.

A proper screen should have a theory of collusion underpinning it. For example, there is a significant amount of theoretical and empirical evidence that collusion is likely to induce decreased price volatility, under particular circumstances (Abrantes-Metz, Froeb, Geweke and Taylor (2006); Athey, Bagwell and Sanchirico (2004); Harrington and Chen (2006)). But that does not mean that all types of collusion are expected to have that effect on prices. Certainly, it is reasonable to expect that when cartellists are fixing prices, they will, to the extent they are successful, likely induce lower price volatility than would otherwise obtain, due to the nature of their agreement. But it does not directly follow that all types of conspiracies will induce price stability. Does that mean that a variance screen to detect collusion lacks usefulness and power? No, not at all. But it does mean that we need to know how and when to use it, and to appropriately take into account relevant market conditions.

6.5 “Why Use Screens if Cartel Members Will Learn to Beat Them”

The argument has been put forward that since it is possible for conspirators and manipulators to learn how to disguise market outcomes to avoid screens, it is futile to begin using screens in the first place. In any other areas of the law, we do not take this position – just because criminals may sometimes outsmart the detection tool does not render enforcement moot nor prevent agencies from improving their detection tools. Furthermore, was it not true that the U.S. leniency program did not work that well 30 or 40 years ago? Did the US DOJ therefore abandon it? On the contrary, it worked to improve the program so that it could become more effective. Why should standards be any different for screening?

Competition authorities should use screens and keep on improving them, but in doing so, they should maintain a degree of non-transparency with respect to the screens used. Notice though that a well-designed screen will go to the core of the conspiracy so that it focuses on the key feature that would be altered by the collusion (if successful). Some screens are more robust in this regard than others. But even if well-designed and implemented, a screen still has a margin of error and may produce an erroneous result because, among other reasons, conspirators have learned how to beat it. If so, it is preferable to continually improve the screen and enhance its detection power rather than to abandon it altogether. We should not let the perfect be the enemy of the good.

6.6 “Screens Are Very Limited Due to Data Restrictions, and We Cannot Subpoena Companies Just So We Can Screen Them”

It is true that the type of screens here discussed, i.e., empirical screens, can only be applied when relevant data are available. Though this restriction excludes some industries, there are many industries for which enough data for a screen are available. In addition, proxies for costs can often be obtained from the Bureau of Labor and Statistics in the U.S., and data on bids for many procurements are publicly and easily available across the country. It bears repeating that reporters and academics have used publicly available data in the Canadian matter and LIBOR, and in several other cases. There are many opportunities to pursue which do not require agencies to subpoena companies for data.

But for industries for which data are not available, competition authorities need to take an active role in requiring basic data (such as prices and quantities) to be collected and made publicly available. There is still a significant number of industries which are completely obscure on basic market statistics – see for example the fracking industry (pressure pumping) which provides services to all oil and natural gas companies worldwide and is currently under investigation by the U.S. DOJ. I am not aware of any publicly available data on prices, quantities, or market shares for this industry. All that exists are a few companies putting out surveys to the operators in the industry to get a sense of what these statistics may be, but such data are not approved by the operators themselves. The lack of information in an industry like this is conducive to anticompetitive practices, as it cannot be monitored through screening or any other way. Responsible agencies need to take a stand and start requiring such data to be reported, collected and available publicly, even if not freely.

6.7 “My Leniency Program Works so Well, Why Should I Bother Engaging in Screening?”

I am hoping that, if the reader is following this note closely, this question would already have been clearly answered in section 4. Going further, agencies such as the U.S. Securities and Exchange Commission run a whistleblower program and screening programs in parallel. These approaches are complements, not substitutes. I stress again that LIBOR was first flagged by screening; only years later were leniency applications filed. Leniency Plus applications have likely begun to be filed, and many additional conspiracies and manipulations are currently being investigated around the world, all as a consequence of the initial flagging of LIBOR through screening.

6.8 *“Screens are Very Popular in Academia, But They Do not Work in the Real World”*

How can this argument against screens be credibly made given all of the significant examples of their successes? LIBOR is the latest, but not the last, I am sure. In just the last two weeks Bloomberg has flagged an alleged conspiracy and manipulation in the FX markets (Vaughan and Finch (2013)). Other very real world examples include the Canadian matter flagged by a reporter and the Mexican and the Brazilian successes, all discussed above.

Most recently, the SEC has initiated investigations of hedge funds generated through their screening programs (Lewis (2012)). Other examples include flagging the Madoff Ponzi scheme years ahead of investigations, as well as cases involving stock option backdating. Are these (and others) not “real world” enough? True that reporters, academics and market experts have been the main players proving the successes of screens. But that doesn’t mean screens are hopelessly academic; rather it may indicate the passivity of some agencies.

I would maintain that none of the arguments commonly advanced against screens really hold up. Why then are screens not more universally adopted? The reason must be beyond any of the ones that I have been discussing here. It could simply be “this is our culture, and we will just not screen.” If that is the real reason, then better to just state it and not make specious arguments against screens.

6.9 *“Screens are Used in All Other Areas, but Antitrust Screening is Harder”*

Antitrust screening is not more difficult than financial market screening. In fact, it is a whole lot easier. Financial prices such as stock and commodity prices can move apparently randomly, but the price of cars or bread is not comparably volatile. When flagging an abnormal price movement in those markets it is likely easier to dismiss other possible explanations; that may not be the case when studying the price of oil.

The markets of interest to competition authorities often have less data available than those of interest to financial regulators. Still, that situation can start to change and, as discussed in section 6.6, there are still many industries ready to be screened.

6.10 *“Screens Just Don’t Work. We Used them 40 Years Ago and They Did Not Work”*

There is hardly anything in our lives that can be compared, in terms of performance and effectiveness, to what an earlier generation of the same products was 40 years ago. Our medical screens are much better now than they were 40 years ago, and we are thankful for those developments. We are thankful, in other words, that earlier generations did not dismiss medical screens out of hand simply because they weren’t perfect.

Did leniency programs “work” really well 40 years ago? It does not seem so, but most likely they work well now. Those programs were developed and improved – they were made better. I am fairly confident that, compared with the state of the art 40 years ago: (i) the screening technology is significantly better; (ii) data are more readily available; and (iii) computing power and data mining algorithms are incomparably more advanced.

Why would antitrust agencies differ from other agencies which currently use screening? The U.S. Internal Revenue Office, the U.S. Department of Transportation, the U.S. Commodities Futures Trading Commission, the U.S. Securities and Exchange Commission, the U.S. Federal Trade Commission, among others, all use screens of one type or another. All agencies are resource constrained. They must believe these are not wasteful initiatives, and they have already produced meaningful investigations.

7. Final Remarks

This note's objective is to make the case that competition authorities worldwide need to be proactive when detecting and deterring cartels, with a focus on screening methodologies. It addresses in detail what I believe to be the key arguments put forward against screening in antitrust and uses the LIBOR screening success to illustrate to the reader why screens must be used. The LIBOR scandal provides valuable lessons on cartel detection and deterrence that must be understood by the relevant antitrust agencies and internalized.

We should focus our discussions on how to start implementing these methods in the best and most efficient way, given resource constraints. The evidence is clear that appropriately developed and implemented screens do work.

It is my hope that this note will contribute to a stimulating discussion at the upcoming OECD meeting and to the further adoption of screening methodologies in antitrust around the world, following the very successful examples from the Mexican and the Brazilian Competition Authorities.

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THE VALUE OF POLICY DIVERSIFICATION IN CARTEL DETECTION AND DETERRENCE

By William E. Kovacic*

1. Introduction

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

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

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

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).

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 &

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

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?

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

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

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 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

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.

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).

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

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.

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

A fourth 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

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 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

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

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).

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).

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*

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**

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?

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? 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*

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*

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

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).

(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.

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

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 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.

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

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.

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 Heclo, *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.").

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*

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*

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 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

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

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).

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.

participants may seek to turn leniency to their own advantage) and to invest, at least to some degree, in alternative detection techniques.

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

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

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:

- *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.

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

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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).

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*

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.

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.

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.

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.

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

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).

²⁶ *Economics of Collusion*, 105-59.

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.

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 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.

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.

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.

³¹ *Economics of Collusion*, 213-55.

BALANCING PROACTIVE AND REACTIVE CARTEL DETECTION TOOLS: SOME OBSERVATIONS

*By Dr. Maarten Pieter Schinkel**

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.

More formally, cartel law enforcement is a subclass of market oversight games.¹ 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.

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.

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 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.

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,

¹ See Schinkel, M.P., *Market Oversight Games*, Amsterdam University Press, 2011.

MasterCard and Google cases are examples of such strong agency play.² 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.

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.

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.

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!

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

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 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.³

² See Schinkel (2011).

³ 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.

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.

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.⁴ 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.

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.

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 leniency cases, while reaping the benefits of serious collusion hidden elsewhere – although in the context of diversified international conglomerates it is not unthinkable.⁵ 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.

⁴ 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.

⁵ This is another area where more research is needed.

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.⁶ 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.⁷ 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 bait!

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.

Let me first clarify, if it 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.⁸ 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 for competition authorities – as opposed to private parties – since they have other investigative powers to steer.

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.

⁶ 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.

⁷ 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.

⁸ 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.

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*.⁹ 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 or infrequent bidder submits a bid.” Suspect also are “identical prices, especially when ... prices previously were 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.

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 of 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.

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.¹⁰ But more importantly do 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.

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

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

¹⁰ 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.

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.

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.

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.

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.¹¹ 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 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.

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

SUMMARY OF DISCUSSION

By the Secretariat

Mr. Frederic Jenny, the Chair of the Working Party 3 (WP3) opened the roundtable on “*Ex officio cartel investigations and the use of screens to detect cartels*” and welcomed all the participants.

The Chair introduced the discussion pointing out that it is a very interesting topic with different views expressed in the 25 contributions submitted by the delegations. Fighting cartels is a high priority for all competition authorities. Most of them rely on reactive tools to detect cartels such as complaints by competitors or consumers and leniency applications. More rarely, competition authorities rely on pro-active detection tools or use tools such as behavioural or structural screens. There are different views on whether the use of reactive tools, and especially of leniency programmes, is sufficient to detect cartels. Some countries have experienced good results from the use of screens whereas in other countries, the results were not sufficient to get a conviction or a proof of an antitrust violation.

The Chair explained that the discussion would be structured around six main topics:

- (i) the right balance between pro-active and reactive cartel detection tools;
- (ii) the experience with behavioural screens;
- (iii) the experience with structural screens;
- (iv) the challenges faced by the implementation of a cartel screening programme;
- (v) the role of screens in detecting bid rigging; and
- (vi) what other reactive measures have been used and found successful.

Before opening the floor for the discussion, **the Chair** introduced the expert panellists invited to participate to the roundtable: Professor Rosa M. Abrantes-Metz (Global Economics Group, United States), Professor Maarten Pieter Schinkel (University of Amsterdam) and Professor William Kovacic (George Washington University, United States).

1. Relationship between reactive and proactive cartel investigation tools

The Chairman invited the delegation of Israel to discuss the Israeli competition authority’s policy on the use of reactive and proactive cartel detection tools. He noted that Israel is one of the countries that strongly rely on *ex officio* cartel investigations despite having in place a leniency programme in 2005.

The Israeli delegation confirmed that the authority’s cartel practice is unique in the sense that it relies extensively on detection tools which are not based on the leniency programme. However, because of limited resources, Israel does not use sophisticated screening techniques but relies on intelligence work similarly to police work. The investigation is conducted by the intelligence team and followed by the investigation team (22 people in total). The delegation stressed that leniency programme is not commonly used by companies in Israel for various reasons, the most important being the fear of the social boycott against the applicant. This is the reason why during the past 5 years, only two cartel investigations were

initiated thanks to the leniency programme, whereas 15 were based on other tools. The delegation concluded by describing the main advantages and disadvantages of reactive and proactive cartel detection tools. For example, they emphasised how proactive tools allow the authority to better prioritise its enforcement action and to focus on the most important cartels.

Professor Rosa M. Abrantes-Metz congratulated Israel on the efforts to use cartel detection tools beyond the leniency programme and stressed that resource intensiveness is a common argument against the use of screens. However, as demonstrated by the Israeli experience, 22 employees might be sufficient to detect cartels through the use of screens. It is a matter of choice on the most effective allocation of the agency resources.

The Chair thanked the Israeli delegation and Professor Abrantes-Metz for their remarks and turned to the US delegation. The Chair noted that according to the US paper in the past the Department of Justice (DoJ) had experimented with screening tools and pro-active ways to detect cartels but concluded that reactive instruments were the most efficient.

The delegation from the United States started its presentation by explaining that screens had been widely used in the past. However, the experience cannot be considered as successful, given that these programmes did not manage to detect many cartels. However, the US delegation noted that having a successful leniency programme does not necessarily mean that the authority cannot have also a proactive role in cartel detection. For example, the DoJ has a variety of other initiatives such as training on red flags and collusion, dedicated websites, speeches by senior officers, meetings with trade associations that can all be considered as pro-active cartel enforcement. The US delegation noted that cartels require a high degree of proof and the US amnesty program, by providing a cooperating witness from inside the cartel, has proved very successful. The delegation also noted that the previous unsuccessful experiences with screens do not necessarily mean that the US will never use screens in the future, especially if the agency is able to acquire crucial evidence through the screening method.

Professor Abrantes-Metz made a few remarks on the US intervention. She emphasised that a very well-known case, the *Libor* case, was detected through screens which consequently led the case to a successful leniency application. Professor Abrantes-Metz emphasised that screens and leniency programme are not substitutes. Screens are a complementary tool that can strengthen the effectiveness of a leniency programme. Finally, screens may not provide the authority with the necessary evidence that can be presented in court to prove an infringement but screens can raise enough red flags and finally lead to cartel detection and investigation.

The Chair then turned to Canada as an example of a more balanced view, given that the Canadian Competition Bureau make extensive use of both the leniency programme and other methods to detect cartels.

The delegation from Canada emphasised that the Competition Bureau uses every available tool to detect cartels. In Canada a percentage of 80% of the investigations derives from immunity applications. Other detection mechanisms are used as well, such as active outreach programmes, regular contact with procurement authorities, speaking with the business about compliance, liaising with other government investigative bodies to raise their awareness of the jurisdiction of the Bureau. All these proactive tools have proved very effective. The Bureau also identifies investigations through media and press monitoring and by reviewing trade associations' reports and press releases. The delegation concluded that for the Bureau the leniency program is an extremely important enforcement tool but it is important not to rely exclusively on it this if one wishes to have an effective cartel detection program.

Concerning more specifically the use of screening techniques, the Canadian delegation explained that screens raise cost/benefits concerns, especially if investigative resources are limited as is the case in Canada. Another issue related to the use of screens is the lack of proper data to run the screen; access to the necessary data is a serious limitation that can affect the results of screening tools. But the most important challenge with screens is that they generally do not lead to strong evidence of an agreement and therefore, it is difficult to proceed without further investigation.

The Chair thanked for the Canadian delegation for the interesting remarks and turned to Professor Schinkel to present his views on why leniency alone may not be sufficient to detect cartels.

Professor Schinkel stressed that cartel enforcement is like an oversight game. Companies with in-house counsels are antitrust professionals and are usually well prepared to avoid detection and investigations by competition authorities. According to Professor Schinkel the balance between proactive and reactive methods differs between agencies. The majority of agencies consider leniency programmes as very efficient and hence preferable to screens. However, leniency and screening are not substitutes but complements. Professor Schinkel described five reasons why he thinks competition authorities should not rely exclusively on leniency programmes. First, the success of leniency should not be shown only by the number of applications or cartel decisions. Leniency is good in prosecution but not always in discovering cartels. Second, the type and quality of a cartel detected through a leniency programme is sometime dubious. Leniency does not always detect sophisticated cartels but rather cartels that are no longer successful and stable. Third, active cartelists can monitor the authorities' enforcement agenda and predict (and try to avoid) detection. Hence the initial comparison with an oversight game. Professor Schinkel explained that screens do not produce conclusive evidence and their results need further investigation. Sophisticated economics or even econometrics will be needed in some cases. Professor Schinkel concluded that the ideal cartel detection program should combine, in an intelligent way, leniency with the analysis of information from various sources (e.g. press and trade journals) and data analysis looking for red flags.

The Chair thanked Professor Schinkel and invited BIAC to elaborate on the direct and indirect benefits of screens from a business perspective.

BIAC pointed out that the successful use of screens can enhance the effectiveness of a leniency programme and hence increase the success rate of cartel enforcement. However, BIAC believes that there are important limitations in the use of screens and advocated a very measured use of them. BIAC explained that the question should focus on which tool provides the best results, given that businesses benefit from effective detection of cartels. Leniency, even if it is difficult to provide precise measurements, results in a high detection rate. However, leniency may not work effectively in all jurisdictions and in all circumstances. Hence, it should be up to each agency to decide whether to focus its resources on pro-active or reactive tools, or on both.

2. The experience from the use of behavioural screens

The Chair thanked BIAC for its contribution to the discussion and invited delegations to share their experiences with the use of successful behavioural screening. To start this discussion he called on Mexico to present its experience with the IMSS case.

The Mexican delegation views the leniency programme as the main tool for cartel detection in Mexico. However, they see the value in trying to implement a mixed approach with *ex officio* investigations next to leniency cases. The delegation presented its experience with the use of screens in the IMSS case. The case started in 2006 when the Mexican Social Security Institute (IMSS) informed the Federal Economic Competition Commission (CFCE) of suspicious bidding patterns it had noticed in tenders for the procurement of certain medicines. The CFCE prioritised the analysis of the bids through

screens. The screens were based on improbable events and controlled groups covering the period from 2003 to 2007. The use of screens provided some interesting results, especially in two groups of medicines, insulin and serum: the annual average of the winning and losing bids was similar and the average changed after the entrance of a new competitor. During the years in which there cartel operated, the average price was even 70% higher. The data showed also evidence of bid rotation schemes with almost equal winnings for each firm involved. Based on this initial evidence, the CFCE opened an in-depth investigation which revealed evidence of contacts and communications between bidders. The delegation concluded that screens may be quite useful but agencies should be taken into account that there is a high risk of errors and their use can be very resource intensive.

The Chair turned to Sweden to present their experience with behavioural screens.

The Swedish delegation discussed a successful application of a behavioural screen in the market of funerals and transportation of deceased persons. After receiving a tip off, the Swedish authority decided to screen all the relevant public tenders over a period of two years. This allowed them to identify a number of identical bids submitted by competing firms. A dawn raid followed and fines were imposed. Another example provided by the Swedish delegation was a bid rigging case in the construction industry. With the use of bidding information, the authority observed that there were no differences on the first decimal of the percentage difference between a winning and a losing bid. The probability of this happening was calculated as one out of 3,000 and led to suspicions of a potential cartel. However, after a dawn raid no evidence of wrongdoing was found.

The Chair thanked the Swedish delegation and invited Chile to discuss a very interesting experience in the poultry market where a general investigation and the use of screening led to an actual cartel case.

According to the Chilean delegation behavioural screens have proved a very useful investigative tool taking into account that leniency programme is not very successful in Chile. The delegation provided two examples on the use of screening methods. First, they presented the pharmacy retail case, where a fine of 40 million dollars was imposed. The case started with the flagging of unusual price increases which followed a period of steady price declines and could be justified by cost or demand shocks. Based on this analysis, further investigative activity led to the acquisition of actual evidence of competitors' communications (i.e. emails). In the poultry case, which is pending before the competition tribunal, the agency analysed the companies' market shares levels and their stability. The data showed stable market shares for a long period of time. The authority requested and received a judicial authorisation for a dawn raid; which led to further evidence been acquired.

3. The experience from the use of structural screens

The Chair opened the discussion on structural screens and invited Australia to share his experience with a structural screening project called the Cartel Intelligence Project.

The Australian delegation noted that the interaction between behavioural/structural screens and immunity policy has given visible results. The use of screens established the possibility for the Australian Competition and Consumer Commission (ACCC) to require the production of documents from the industry participants. The delegation emphasised that screens need an initial resource investment but given the flexibility of the process, the need of resources is comparatively little once the screening programme is operational. However, screens cannot lead to a successful prosecution as such, and it is for this reason that there is a need to combine screens and other reactive tools, such as the immunity policy, in order to ensure valuable results.

The Chair thanked the Australian delegation and turned to Japan to ask to discuss the links between structural factors and the risk of cartelisation discussed in a report published by the Competition Policy Research Centre of the Japan Fair Trade Commission (JFTC).

The Japanese delegation explained that the JFTC does not use structural screens, but it is currently considering such a possibility. The Competition Policy Research Centre (CPRC) is attached to the JFTC and includes academics in charge of conducting independent studies and research. In one of their report, the CPRC used industrial data spanning over a period of 15 years and conducted an econometric study to estimate the probability of cartels in different industries. The study used a number of variables (e.g. concentration ratio and entry barriers) to predict the probability of a cartel formation. However, the statistical results were not very significant. In this perspective, the analysis and its results can be used as reference information for cartel detection but not for proving the existence of a cartel. The delegation concluded that this type of analysis should be used very carefully and that the results should be used more as a complement to the traditional investigative activity.

The Chair gave the floor to Professor Schinkel and Professor Abrantes-Metz for a short reaction.

Professor Schinkel made a quick remark noting that structural screens should be used very carefully indeed. The fact that an industry shows the characteristics which might favour collusion does not mean that a cartel exists in that industry. Behavioural screens provide with a wider net for analysis. Professor Abrantes-Metz agreed with Professor Schinkel and added that the exclusive use of structural screens may lead to enforcement errors. Structural screens should be used together with behavioural or empirical screens in order to combine the structure of the industry and the evidence on firms' behaviour.

The Chair thanked for these interventions and invited Chinese Taipei to discuss their experience with the use of structural screens.

According to Chinese Taipei the leniency programme has not proved very successful, with only one application received so far. This is due to various reasons, some of them cultural and others related to the fact that domestic businesses are of medium-small size. Because the leniency programme did not yield the expected results, the agency focussed more on structural and behavioural screens. The delegation explained how the competition authority monitored 6 structural indicators (i.e. industry scales, concentration, entry barriers, operational efficiency, innovation and industry growth trends) in the main national industries such as manufacture of food products, manufacture of other non-metallic minerals, computers and electronic and optical products, electricity and gas, specialized construction activities, waste collection, and others. Many of these industries were characterised by high entry barriers, homogenous products, and very low innovation rate leading to the identification of significant price uniformity. Most of these sectors experiences cartel activities.

The Chair invited the UK to share the view of its agencies on structural screens. According to the paper submitted by the UK for the roundtable structural screens are unlikely to provide sufficiently strong evidence for initiating a cartel investigation.

The delegation of the United Kingdom stressed that there is no scepticism about structural screens. On the contrary, UK had attempted in the past to identify what structural factors in a market can lead to collusion. This means that structural screens are an important complementary tool and it shows that the UK is not sceptical on the use of screens. The delegation also pointed out that next to leniency cases, the UK has opened a number of cases based on the OFT's own detection activity. The OFT has a strong intelligence unit which works in close contact with the economic branches and this has delivered results. The delegation also noted that the use of screens (e.g. analysis of price movements) cannot be considered a sufficient basis for requesting a dawn raid or for the use of intrusive surveillance which requires a

reasonable degree of suspicion (e.g. telephone records) to be approved by a judge. Therefore, screening methods can be a useful tool but further investigation is always required before the OFT can initiate a cartel case.

The Chair thanked the UK and gave the floor to the Netherlands.

The Dutch delegation reported that in the last 7 years the NMa has performed a complete structural screening of the Dutch economy with more than 500 sectors reviewed in light of various structural indicators. This screening process led to the creation of a competition index which shows the risk of anticompetitive behaviour in certain sectors. The method is publicly available and cannot be manipulated. The NMa experience shows first that choosing a really stable screening method can be difficult, and that there is a constant need to check the validity of the methodology used and to improve it. Second, validating the results of the screening method may be challenging. And third, that screening methods are most effective when combined with leniency and other cartel detection methods. The delegation concluded that once the method is established it is not anymore very labour intensive.

At this point, Professor Schinkel observed that structural screens are exposed to type II errors (i.e. fail to detect existing cartels). In the Netherlands, for example, the NMa competition index was not able to detect the construction cartel, the biggest cartel ever investigated in the Netherlands. Professor Schinkel also noted that announcing the screening program to the public is important to generate deterrence, but the competition authority should not disclose the methodology on which the screen is based to avoid that firms put in place countermeasures to avoid detection. The Dutch delegation agreed that the construction cartel could not be detected with the use of screens. However, there are some false positives from the use of screening but also some false negatives and this is why structural screens should be combined with leniency programme and behavioural screens.

The Chair thanked the delegation and turned to Professor William Kovacic for his presentation.

Professor Kovacic gave a presentation on the benefits of diversification in cartel detection. He outlined the options faced when designing an anti-cartel programme. Assuming that it has the necessary resources, an agency has different options to become a more effective cartel enforcer: a) to focus on the nature of the law and establish categorical prohibitions; b) to broaden the evidence that is considered to prove a concerted action; c) to increase the likelihood of detection; d) to increase the likelihood of prosecution, e.g. by establishing private rights of actions to supplement the authority's enforcement powers; d) to increase the effectiveness of the adjudication; e) to raise the level of sanctions; f) to invest resources in advocacy. There are three main obstacles to diversification. First, the experience with the use of screens is not always successful. Professor Kovacic recalled his personal experience at the Federal Trade Commission (FTC) where screening programmes were poorly designed and led to insufficient results. Second, leniency programmes deliver strong evidence and give visible results which are essential to invest in cartel enforcement. Third, especially for less well-funded agencies, a major investment can create additional burden and hence it is not attractive.

According to Professor Kovacic it is also important to remember that cartels undergo a process of ingenious and inventive adaptation to avoid detection. Cartelisation is enormously profitable and good cartels adapt more and more effectively to a new environment. Professor Kovacic concluded by describing the specific approaches that an agency should follow. There is a constant need of investing in new techniques and changing older ones. The leniency programme for example, was an investment and required a high degree of experimentation before it could give results. Another approach is represented by investing in market studies. The FTC for example, conducted series of market studies with successful results in the petroleum and pharmaceutical sectors. These market studies can increase the rate of cartel detection.

The Chair thanked Professor Kovacic and invited Professor Abrantes-Metz to discuss how to design sophisticated screens.

Professor Abrantes-Metz opened her presentation explaining that she has been working with screens for almost ten-year and she has always perceived some resistance to the use of these tools. According to Professor Abrantes-Metz it is not fair to compare the current screening methods with those used 40 years ago and which proved unsuccessful. The economic thinking and evidence on how cartels work and the methodologies used to model collusion and competition have developed significantly in recent years and today screens are much more reliable than they used to be. Professor Abrantes-Metz provided many examples of successful screening applications, such as the Mexican IMSS case discussed by the Mexican delegation, the screen used in Brazil in gasoline markets, the screen that detected the alleged NASDAQ conspiracy in US in the 1990s, i.e. the Madoff's Ponzi scheme, the screens used on stock prices in the US, the Canadian case on road construction and finally, the most successful and recent case, the LIBOR case.

The LIBOR case started in 2008 when the Wall Street Journal wrote about possible manipulation of the index. The application by Professor Abrantes-Metz and other of screens found that LIBOR followed certain unusual patterns and this might have been a sign of possible collusion. For example, Professor Abrantes-Metz showed how the LIBOR did not move at all for almost a year compared to other benchmarks that were –even with minor changes- moving. Additionally, when other benchmarks (e.g. Credit Default Swaps) reflected an increased risk in the market, the LIBOR did not respond to that factor at all. These patterns could not be considered as proof of a manipulation of the index, but raised serious concerns on the credibility of the index. This triggered the interest of the authorities and led to leniency applications and to many investigations around the world of the LIBOR index. Other cases on similar indexes are pending before a number of competition authorities. Professor Abrantes-Metz emphasised that the LIBOR case shows the true value of screens. Screens have a high likelihood of detecting cheating. Of course there is complementarity between screens and leniency programmes. Screens can also be valuable tool to help agencies prioritise resources and focus their investigative efforts on markets and/or cases which deserve the enforcer's attention the most. They can also help to detect and deter illegal practices, i.e. if firms know that there is a screening progress they will think more carefully before forming a cartel.

The criticisms against screens usually focus on several issues. First, the errors that can result from the screening exercise are an actual risk but they may depend on a variety of factors sometime unrelated to the screen itself (e.g. there is a lack of proper expertise to run the screen correctly). Second, some argue that screens cannot distinguish between tacit and explicit collusion. Professor Abrantes-Metz provided the example of LIBOR and showed that in one specific day, almost all of the 16 banks turned in to the same quote. Of course this is not a proof of explicit collusion but explicit collusion is more likely than tacit collusion. A third argument against screens is that they are resource intensive. This can be true but not in every case; for example, the screening the data which unveiled the LIBOR manipulation took no longer than 5 days. In conclusion, Professor Abrantes-Metz stressed that competition agencies should consider screens seriously. The data and techniques are much better today as compared to 40 years ago and the LIBOR case can be used as a very good example to convince the sceptics.

4. The implementation of a screening programme

The Chair thanked Professor Abrantes-Metz and moved to the next part of the discussion, i.e. the challenges that agencies might face with the implementation of screens. To start this discussion the Chair invited Estonia to present the position of a small competition agency with limited resources.

According to the Estonian delegation, *ex officio* cases opened by the competition authority were mostly based on media reports, a process that may raise risks of distortions or false claims. However, the competition authority had some good results from the co-operation with the media. In 2010, a daily newspaper asked the competition authority to comment on the legal effect of a potential infringement of market sharing by several security providers before publishing an article on this story. An inspection followed and after a leniency application, the authority imposed fines to the security providers.

The Chair thanked the Estonian delegation and invited Hungary to present its experience with the use of mixed screens.

The Hungarian delegation reported the use of a variety of tools for cartel detection. The Hungarian competition authority (GVH) uses reactive tools such as formal complaints, whistleblowers and leniency policy. Recently, the authority introduced a variety of pro-active tools such as a leaflet for public procurement officials, training sessions and a website on compliance. With respect to the use of screens, the delegation described three examples of attempted use of screens during the last seven years. In 2007, the authority tried to introduce a two-step system, with first an industry analysis to describe the level of competition and second a critical event analysis to unveil the cartel activity. The project failed because of the lack of resources to run it. In 2010, the Chief Economist of the GVH and his team tried to implement a behavioural model for detecting cartels; however, the amount of data needed was very large and not readily available. Currently, the authority focuses on detection of bid rigging cases using an electronic database on public tenders. The GVH is currently co-operating very closely with the public procurement authority to address several problems identified with the data and their organisation in the database.

The Chair then turned to BIAC for a short intervention before opening the discussion on the use of screens on bid rigging.

According to BIAC, the 20 years of experience on the economic analysis of cartels shows that the vast majority of cartels are not sophisticated cartels. The use of screens for bid rigging is reasonable, as it is easier to identify an unusual conduct in public tenders, i.e. when bidders submit identical bids or there is a rotating scheme over time among competitors. However, the use of screens on price fixing is more difficult because of the data limitations, which makes it very difficult to prove unusual price increases or changes in price volatility. BIAC stressed that the experience on cartels shows that even where the data is available, it would be difficult to prove the existence of explicit collusion. BIAC concluded that in order to design screens to identify collusive behaviour, it would be useful for the authorities to assess the actual effect of this conduct.

5. The use of screens to detect bid rigging conspiracies

The Chair invited Korea and Italy to present their experience on the use of screens on bid rigging cases.

The Korean delegation presented its Bid Rigging Indicators Analysis System (or BRIAS). The BRIAS is an automatic quantitative analysis system which receives online information from public procurement agencies in Korea and analyses the possibility that tenders' results may be affected by bid rigging. The system elaborates different information such as the rate of successful bids, bid price, number of failures, price increases etc. and produces an index of bid rigging risk for each tender. The Korea Fair Trade Commission (KFTC) has benefitted from the use of BRIAS in particular as a deterrence tool. The market is aware that KFTC monitors tenders constantly and that has deterred this type of behaviour. In addition, thanks to BRIAS, the KFTC has opened a successful investigation of a bid rigging conspiracy for the extension of a subway line. Following an investigation, the cartel was fined 20 million dollars.

The Italian delegation took the floor and noted that the Italian Competition Authority is very active in trying to improve its cartel detection capacity and especially its ability to detect bid rigging cartels. The collection of the procurement data necessary to run bid rigging screens is done in co-operation with the authority responsible for the supervision of public procurement contracts. However, the database is not yet ready to give results from screening indicators. The delegation stressed its ongoing efforts to improve the data and noted that difficulties with data collection should not discourage agencies from using screens. In conclusion, the delegation noted that there are always benefits from this process; for example in the case of Italy the information collected led to the preparation of a handbook for public procurement agencies on how to detect bid rigging.

6. Other reactive tools that have proved successful

The Chair thanked the delegations that shared their experiences with screens and asked to the European Commission (EC) what was the source of the 30 *ex officio* investigations since 2005 that the EC reported in its paper, given that they do not make extensive use of screens.

The delegation of the European Union explained that their experience with the use of economic screens, which started in early 1990's, was not very successful. However, this does not mean that the Commission does not open *ex officio* investigations. Actually these investigations amount to approximately 20% of all cartel investigations opened by DG Competition between 2005 and 2010. The investigations originated from the following sources: a) outside information such as complaints from the public and whistle-blowers; b) from other departments of the European Commission, such as the raw tobacco cartel detected through the information from the Director General of Agriculture; c) information from antidumping complaints; d) market intelligence and market inquiries; e) information from other competition authorities and especially through the European Competition Network (ECN). The EU delegation concluded that even if the leniency programme is very successful, *ex officio* investigations are absolutely necessary in order to expose stable cartels that are not usually detected by the leniency program and to provide stronger incentive to potential leniency applicants to approach the European Commission.

7. Conclusion

The Chair thanked the experts and all the participants for their contributions and concluded the discussion with some final comments.

First, he emphasised that the discussion showed how almost every country uses different types of cartel detection tools and that irrespectively of the tools they use, they all seem to benefit from relying on a variety of instruments for cartel detection.

Second, the roundtable showed that there are both substitutability and complementarity between screens and leniency programmes. In some countries, where leniency programmes do not work effectively, screens are a very useful tool to support a cartel enforcement program. In other countries, screens have proved a useful complement to leniency programmes by providing stronger incentives to firms to report cartel activities.

Third, there is a difference between structural and behavioural screens. However, a combination of the two instruments is preferable. The discussion showed that screens can be used as a starting point for an investigation, but cannot lead to sufficient proof of cartel activity. Screens need to be followed up by a proper investigation.

Finally, media monitoring, market inquiries and market studies can be a very good alternative way to screens and can represent a successful pro-active cartel detection method.

SYNTHÈSE

*Par le Secrétariat **

Les principaux points ci-dessous ressortent de la note de référence du Secrétariat, des contributions écrites et des discussions de la table ronde consacrée aux *Enquêtes d'office relatives aux ententes et à l'utilisation de filtres pour détecter les ententes* :

- (1) *Les programmes d'amnistie/de clémence restent la mesure la plus efficace de détection des ententes. Nombre d'autorités de la concurrence recourent largement à ces programmes pour détecter les ententes et mener des enquêtes dans ce domaine, faisant valoir que ces programmes leur permettent d'obtenir un taux de détection très élevé et leur procurent de solides pièces à conviction sur l'existence et le fonctionnement des ententes. Cela étant, le recours excessif à ces programmes peut en compromettre l'efficacité même du fait qu'en dehors de ce cadre, la probabilité de détecter des ententes s'en trouvent réduite. L'association de divers moyens d'action, au nombre desquels pourraient figurer des mesures de détection proactives et réactives, est considérée comme la manière de procéder la plus efficace.*

Les autorités de la concurrence recourent largement à des programmes d'amnistie/de clémence qui leur permettent d'obtenir de très bons résultats du point de vue du nombre d'ententes détectées. Ces programmes se fondent sur le fait qu'ils incitent les entreprises à porter l'existence d'une entente à l'attention de l'autorité de la concurrence en contrepartie d'une amnistie ou d'une décision plus clémentine au moment de la détermination du montant d'une amende. Ces incitations reposent sur le présupposé que l'autorité détectera quoi qu'il en soit l'entente et en sanctionnera sévèrement les membres. Il s'ensuit que les autorités de la concurrence pourront susciter d'autant plus de demandes d'amnistie/de clémence qu'elles parviendront, d'une manière ou d'une autre, à être encore plus à même de détecter des ententes. Grâce aux programmes d'amnistie/de clémence, les autorités ne mettent pas seulement au jour des ententes mais peuvent aussi se procurer des pièces à conviction qu'elles ne pourraient obtenir sans cela au moyen des techniques d'enquête plus classiques. En ce sens, les mesures d'amnistie/de clémence permettent à la fois de détecter et de poursuivre un plus grand nombre d'ententes tout en faisant cesser davantage d'ententes ou en en dissuadant encore plus la formation.

En dépit du succès général de ces programmes dans le monde entier, il est ressorti de la table ronde qu'un recours excessif ou exclusif à ces mesures est susceptible de susciter certaines préoccupations pour l'action publique. Cette situation est liée au fait que dans certains cas, les programmes de clémence ne sont parfois pas aussi efficaces que prévu. Ainsi, des travaux théoriques ont donné à penser que les programmes d'amnistie/de clémence ne permettent pas de mettre au jour les ententes complexes et rentables mais révèlent au contraire celles dont les résultats ne sont plus fructueux ou qui ne sont plus stables ou encore qui sont sur le point de se disloquer. D'après ces travaux, les programmes d'amnistie/de clémence ne permettent généralement de mettre au jour des ententes que dans un nombre limité de secteurs d'activité et non dans l'ensemble de l'économie. Enfin, dans les économies de petite taille, les incitations à

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Cette synthèse ne représente pas nécessairement le point de vue unanime du Comité de la concurrence. Elle présente néanmoins les principaux points soulevés lors des débats de la table ronde, dans les contributions écrites des délégués ainsi que dans la note de référence du Secrétariat.

solliciter l'amnistie ou la clémence sont moins fortes du fait que le risque de rétorsion commerciale contre les entreprises qui demandent à en bénéficier est nettement plus élevé sur les marchés sur lesquels il y a moins de concurrents.

Dans les pays ou territoires où les programmes d'amnistie/de clémence se sont avérés moins efficaces, les autorités de la concurrence se sont montrées nettement plus intéressées par les mesures proactives de détection des ententes. Il ressort de la pratique de la plupart des autorités de la concurrence qu'une panoplie d'outils de détection, réactifs et proactifs, peut contribuer bien davantage à assurer l'efficacité d'un programme de répression des ententes. La table ronde a mis en évidence qu'un tel programme, pour être rigoureux, devrait être assorti à la fois de mesures de clémence et d'outils proactifs de détection, y compris, au besoin, d'un système de filtres. Les programmes de clémence et les mesures de détection proactives ne se substituent pas les uns aux autres, mais sont complémentaires. Les mesures proactives permettent de renforcer l'efficacité des programmes d'amnistie/de clémence en incitant davantage les membres des ententes à en demander le bénéfice.

- (2) *S'agissant des filtres, il existe deux approches générales : i) une approche structurelle qui repose sur une analyse des caractéristiques structurelles et relatives au produit d'un marché ou d'un secteur donné les prédisposant davantage à des stratégies de collusion et ii) une approche comportementale, qui identifie par filtrage les comportements des entreprises ou les retombées sur le marché qui peuvent être le résultat d'une stratégie de collusion. La combinaison de filtres structurels et comportementaux est l'approche la plus efficace.*

La méthode du « filtrage structurel » repose sur ce que la théorie économique et les travaux économétriques nous apprennent de la relation entre les caractéristiques d'un marché et la probabilité de collusion sur les marchés, essentiellement parce qu'elle met en évidence certaines caractéristiques des produits ou des marchés qui favorisent la collusion. Grâce à cette approche, l'autorité de la concurrence est en mesure de filtrer, sans avoir à se limiter, tous les marchés ou secteurs en vue de signaler ceux sur lesquels la probabilité d'une entente est la plus forte.

Les recherches économiques théoriques ont mis en évidence un certain nombre de facteurs qui peuvent influencer sur les gains et coûts potentiels – et, partant, sur la rationalité et la stabilité des ententes et de la collusion. Ces facteurs se répartissent entre les facteurs structurels, les facteurs liés à l'offre et les facteurs liés à la demande. Font partie des facteurs structurels qui facilitent la collusion le faible nombre de concurrents, les obstacles importants à l'entrée, la communication fréquente entre les entreprises (par exemple dans le cadre d'appels d'offres répétés) et la transparence du marché. Les facteurs liés à la demande sont la stabilité des conditions de la demande, la faible élasticité de la demande, le pouvoir d'achat et l'absence d'effets de club ou de réseau. Enfin, les facteurs liés à l'offre sont la maturité du secteur, la lenteur du rythme de l'innovation, la symétrie des coûts et la possibilité de mise en commun des coûts, la symétrie des capacités, l'homogénéité des produits, les contacts multi-marchés, les liens structurels, des antécédents de comportements anticoncurrentiels, ainsi que des rapports contractuels fréquents entre concurrents (par exemple, des accords de coopération).

Le « filtrage comportemental » se rapporte aux diverses méthodes conçues pour indiquer si des entreprises ont mis en œuvre des pratiques collusives ayant effectivement eu des incidences sur un marché particulier. Il permet de décrire une situation de concurrence ou de collusion éventuelle sur un marché particulier à partir de l'analyse de diverses variables telles que les prix, les quantités, les parts de marchés, les décisions de soumissionner, etc. Dans le cadre de cette approche fondée sur le « comportement » ou les « résultats », les économistes examinent le comportement des marchés et de leurs participants et appliquent des filtres afin d'évaluer si un comportement observé peut plus ou moins correspondre à une collusion ou au contraire, au respect des règles de concurrence. Les

filtres comportementaux servent à signaler de possibles manipulations ou actions concertées en se fondant sur deux principes fondamentaux : (i) des événements improbables ou inhabituels peuvent être un signe de manipulation ou d'action concertée des membres d'une entente si on ne peut les expliquer autrement que par des pratiques coordonnées d'acteurs du secteur et (ii) la comparaison du comportement de personnes ou de groupes dans des situations similaires peut mettre en évidence une manipulation ou une action concertée.

Ces deux méthodes ne s'excluent pas l'une l'autre. Au contraire, on considère habituellement qu'elles sont complémentaires, de sorte que si le filtrage structurel donne des résultats positifs, les autorités de la concurrence peuvent agir de manière plus ciblée en fonction du comportement des entreprises et de leur compatibilité avec un processus concurrentiel.

- (3) *Les filtres sont utiles dans le domaine des marchés publics car ils permettent de mettre au jour les soumissions concertées. Nombre d'autorités de la concurrence disent avoir utilisé des filtres pour détecter des soumissions concertées, ce qu'elles ont pu faire du fait qu'elles ont pu disposer d'un important volume de données fiables relatives aux soumissions dans le cadre des marchés publics.*

La détection des soumissions concertées a été un terrain fécond pour l'élaboration des filtres comportementaux. L'abondance des données disponibles sur les appels d'offres publics a permis aux économistes et aux autorités de la concurrence de mettre au point plusieurs techniques de filtrage et leur a fourni l'occasion de les tester par des mesures économétriques. Le fait que les affaires de soumissions concertées représentent une part importante des mesures d'application du droit de la concurrence dans de nombreux pays a également facilité la définition des marqueurs de collusion utilisés pour concevoir les filtres.

En général, les filtres de soumissions concertées reposent sur deux intuitions. Premièrement, dans un processus d'appel d'offres, les soumissions doivent être présentées séparément. Si une entente est à l'œuvre les soumissions contiendront des signes de coordination entre les soumissionnaires. La collusion explique parfois des soumissions « trop corrélées ». Deuxièmement, les soumissions présentées par des concurrents distincts doivent faire état avec précision des coûts encourus par chacun des soumissionnaires sur un marché concurrentiel. À partir de ces deux critères, les économistes ont élaboré de nombreux filtres pour détecter de possibles soumissions concertées.

En général, les autorités de la concurrence centrent leur action sur des schémas fréquemment utilisés susceptibles d'indiquer la pratique de soumissions concertées, comme la présentation de soumissions identiques, la forte corrélation entre les soumissions, le décalage entre la soumission et les coûts encourus par chaque soumissionnaire et les différences importantes entre l'offre retenue et les autres. La table ronde a mis en lumière un certain nombre de cas dans lesquels les autorités de la concurrence ont réussi à détecter des soumissions concertées à l'aide de filtres. Certains pays ou territoires, qui sont allés un cran plus loin, ont en outre mis au point des programmes reposant sur des indicateurs de la pratique des soumissions concertées en se servant de bases de données leur permettant de contrôler en permanence les soumissions et les schémas de soumission. Ces systèmes sont conçus pour quantifier la probabilité de soumissions concertées à l'aide de marqueurs spécifiques (autrement dit d'indicateurs) comme les taux de soumissions remportées, le prix de l'offre, le nombre de soumissions non remportées, les augmentations de prix etc.

- (4) *L'application de techniques de filtrage a mis en évidence plusieurs difficultés liées à l'utilisation de filtres. Les filtres ne procurent pas de preuves suffisantes de l'existence d'une entente. Ils peuvent générer des faux positifs ou des faux négatifs et ne permettent pas de différencier la collusion explicite de la collusion tacite. Le recours aux filtres nécessite de mobiliser des ressources et des données considérables. Les membres des ententes peuvent en outre être en mesure d'adapter leur comportement à la technique de filtrage utilisée pour ne pas être détectés.*

La table ronde a fait ressortir toutes sortes de limites et de difficultés découlant de l'application de ces méthodes de filtrage. Les filtres peuvent être très utiles pour signaler des schémas inhabituels sur certains marchés mais ces schémas ne constituent pas pour autant des preuves suffisantes de collusion. Le recours aux filtres doit donc être suivi d'enquêtes approfondies. L'utilisation de filtres constitue la première étape dont l'objet est de signaler les cas où une enquête plus poussée doit être menée. Ces filtres ne sont que le point de départ d'une éventuelle enquête portant sur une entente et ne procure que rarement d'éléments suffisants prouvant l'existence d'une entente. Généralement, les tribunaux estiment que les résultats obtenus grâce à ces filtres sont suffisants pour autoriser l'autorité de la concurrence à procéder à une inspection ou à une perquisition.

Les filtres peuvent produire de faux positifs (en attirant l'attention sur des affaires qui ne méritent pas d'examen plus poussé) ou de faux négatifs (en ne permettant pas de détecter la collusion sur un marché donné), ce dont les autorités de la concurrence doivent être conscientes lorsqu'elles décident de mettre en œuvre un programme de filtrage des ententes. Un type particulier de faux positif s'explique peut-être par le fait que les filtres ne permettent apparemment pas de faire pas la distinction entre les différents types de collusion, autrement dit entre les cas de collusion explicite et ceux de collusion tacite.

La mise en œuvre d'un programme de filtrage efficace peut nécessiter des ressources humaines et des compétences considérables. Un tel programme peut être lourd à gérer, ce qui pourrait dissuader les autorités de la concurrence, en particulier lorsque les ressources dont elles disposent sont consacrées aux outils de détection proactifs classiques comme les programmes de clémence. Selon certaines délégations, le besoin de ressources n'est, relativement, pas si important pour atteindre l'objectif visé, la question qui se pose étant plus celle de l'efficacité avec laquelle ces ressources sont affectées que l'ampleur des investissements réalisés. En outre, il est indispensable de disposer d'informations et de données suffisantes, pertinentes et exactes à chaque étape du processus de filtrage, de sa conception à sa mise en œuvre et jusqu'à l'interprétation de ses résultats. L'accès à ces informations est une question essentielle, quelle que soit la méthode économétrique utilisée, et le risque d'échec est important si, lors de la collecte des informations nécessaires, les membres de l'entente apprennent qu'ils font l'objet d'un examen approfondi de la part de l'autorité de la concurrence. Plusieurs délégations ont souligné que, dans certains cas, le manque de données fiables a été l'une des principales raisons pour lesquelles les filtres ont abouti à des résultats qui ont pu être source de méprise ou jugés non fiables.

Un autre sujet de préoccupation est la capacité des entreprises parties à une entente à se soustraire à la détection en adaptant leur comportement de manière à « contourner » le filtre. Cela peut être le cas lorsque les informations concernant l'approche générale et la méthode de filtrage utilisée par l'autorité de la concurrence sont connues du public. Les ententes les plus solides et les plus rentables s'adaptent plus efficacement à un nouvel environnement, ce risque étant susceptible de survenir dès lors que l'autorité de la concurrence fait publiquement savoir qu'elle utilise des filtres. Cela étant, plusieurs délégations ont fait valoir que même si le programme de filtrage est connu du public, les membres d'une entente peuvent tout de même avoir du mal à s'y adapter dès lors que des éléments essentiels du programme et de sa mise en œuvre ne sont pas divulgués.

En dépit de ces limites, il ressort de la table ronde que de nombreux pays ou territoires recourent à une méthode de filtrage ou à une autre, soit en tant que mesure générale de détection des ententes soit dans certains cas précis. Quels que soient les outils de filtrage utilisés, la principale conclusion mise en évidence lors de la table ronde est que les autorités de la concurrence ne doivent pas s'en remettre exclusivement à un seul moyen d'action mais doivent suivre une approche globale pour détecter les ententes.

NOTE DE RÉFÉRENCE

*Par le Secrétariat*¹

1. Introduction

L'ouverture d'enquêtes et de poursuites concernant les ententes injustifiables, leur éradication ainsi que l'action menée pour dissuader les personnes physiques et morales d'y participer figurent au nombre des principales priorités des autorités de la concurrence. Cependant, en raison du secret qui entoure les ententes et du fait que leurs membres ne ménagent aucun effort pour dissimuler leurs activités illicites, il est difficile de démontrer que des concurrents ont communiqué directement entre eux ou ont passé des accords. Pour surmonter les difficultés inhérentes à la détection des ententes, les autorités de la concurrence tablent en général sur les informations rapportées par des tiers concernant l'existence et le fonctionnement d'une entente (« détection réactive ») plutôt que sur la recherche active d'entreprises ou de marchés suspects afin d'ouvrir une enquête d'office (« détection proactive »). Leurs principales sources d'informations sont les clients insatisfaits qui signalent des soupçons de comportement anticoncurrentiel de la part des commerçants, les salariés mécontents devenus dénonciateurs ou les complices qui avouent spontanément leur comportement illicite dans le cadre de programmes d'amnistie ou de clémence². C'est ce qui explique que la plupart des autorités nationales de la concurrence consacrent la majeure partie de leurs ressources à l'examen du nombre croissant d'affaires portées à leur connaissance dans le cadre de ces programmes, et sont moins portées à rechercher et détecter activement les ententes. C'est ce qui explique que dans certains pays, les programmes de clémence ont pris le pas sur les autres moyens de détection des ententes.

La question ici posée est de savoir si les autorités de la concurrence ont raison de s'appuyer sinon exclusivement ou presque exclusivement sur les programmes d'amnistie et de clémence pour détecter les ententes. De plus en plus d'auteurs mettent en cause ce qui est perçu comme un parti pris des autorités de la concurrence en faveur de la détection réactive, et en particulier des programmes d'amnistie et de clémence. À cet égard, certains observateurs affirment qu'en se désintéressant de la détection proactive, les autorités se priveront de la possibilité de déclencher de façon autonome des enquêtes fructueuses sur les ententes, ainsi que d'externalités positives en termes d'amélioration de l'efficacité des programmes d'amnistie et de clémence. Par exemple, un haut responsable américain de l'application du droit de la concurrence affirmait récemment que l'une des trois conditions essentielles de l'efficacité d'un programme d'amnistie ou de clémence est que les « *entreprises perçoivent qu'elles risquent fort d'être détectées par les autorités de la concurrence si elles ne se dénoncent pas*³ ».

¹ Le présent document a été rédigé par M. Antonio Capobianco, de la Division de la concurrence de l'OCDE, et par M. Yonatan Cwikel, qui est détaché par l'Autorité israélienne de lutte contre la concurrence auprès de la Division de la concurrence de l'OCDE.

² Selon le Réseau international de la concurrence, la détection des ententes intervient le plus souvent à la suite des plaintes déposées par des concurrents, des salariés ou des consommateurs, mais les programmes d'amnistie et de clémence seraient plus efficaces, principalement parce qu'ils permettent d'accéder directement et rapidement aux éléments de preuves irréfutables des pratiques d'entente et que leur mise en œuvre semble nécessiter moins de ressources que les autres dispositifs de détection. Voir RIC (2010).

³ Voir Hammond (2010).

Les autorités de la concurrence doivent donc envisager d'étoffer leurs dispositifs de détection réactive en repérant en amont les ententes et en ouvrant des enquêtes d'office indépendantes sur les personnes physiques et morales suspectes. Dans ce contexte, la présente étude s'intéresse au rôle que les filtres empiriques peuvent jouer dans la détection proactive des ententes et l'ouverture d'enquêtes d'office. Le filtrage s'entend des méthodes de détection conçues pour aider les autorités de la concurrence à déterminer quels sont les marchés ou les secteurs les plus exposés aux pratiques d'entente et, dans certains cas, pour attirer l'attention sur de possibles pratiques d'entente appelant un examen plus détaillé⁴.

La première méthode, communément appelée filtrage « structurel », est fondée sur la corrélation que permettent de faire la théorie économique et la recherche empirique entre les caractéristiques des marchés et leur exposition au risque de collusion, à partir principalement du recensement de certaines caractéristiques structurelles des produits ou du marché considérés qui facilitent la collusion. Cette approche peut permettre à l'autorité de la concurrence d'examiner un certain nombre de marchés ou de secteurs d'activité pour attirer l'attention sur ceux qui sont les plus exposés aux ententes.

La deuxième méthode, qui s'appuie sur le filtrage « comportemental », permet de déterminer si un marché particulier a déjà été affecté par des pratiques de collusion. Bien sûr, les preuves directes des pratiques d'ententes ne sont pas faciles à observer et à mettre au jour. Cependant, la théorie économique et l'analyse des données concernant des ententes connues ont permis de mettre en lumière différents types de traces observables que la mise sur pied, la mise en œuvre et le démantèlement d'une entente sont de nature à laisser. Les filtres comportementaux servent précisément à détecter ces traces.

Ces deux méthodes ne s'excluent pas l'une l'autre. Au contraire, on considère habituellement qu'elles sont complémentaires, de sorte que si le filtrage structurel donne des résultats positifs, les autorités de la concurrence peuvent agir de manière plus ciblée en fonction du comportement des entreprises et de leur cohérence dans un processus concurrentiel.

Une réserve s'impose d'emblée s'agissant de l'utilisation de filtres dans le cadre de l'application des règles de concurrence. Les publications spécialisés admettent la difficulté qu'il y a à engager une réflexion théorique et empirique sur les types de structures et/ou de comportements qui caractérisent les ententes. Nous expliquons dans les pages qui suivent que certaines structures de marché et certains résultats sur le marché relèvent *parfois* de la collusion. Les filtres sont conçus pour détecter ces structures et ces résultats. Ils ne permettent toutefois pas de répondre à une question fondamentale qui se pose aux autorités de la concurrence en cas de résultat positif, qui est de savoir s'il y a véritablement entente ou s'il s'agit d'une collusion « purement » tacite. Ce problème affecte en particulier les filtres structurels mais concerne également les filtres comportementaux – la différence entre collusion tacite et collusion explicite tient-elle à ce que celles-ci impliquent respectivement en termes de tarification parallèle et d'écarts de prix ? Précisons également qu'un filtre efficace doit permettre de faire la part entre pratique concurrentielle et non concurrentielle, mais que pour déterminer si des pratiques non concurrentielles relèvent du non-respect du droit de la concurrence, l'autorité concernée doit mener une enquête approfondie et recueillir des preuves concrètes des pratiques d'entente⁵.

⁴ Les filtres se prêtent à de multiples usages mais seul est abordé ici celui qu'en font les autorités de la concurrence et les responsables de la passation des marchés publics dans le cadre des la lutte contre les ententes. Pour de plus amples informations sur leurs autres usages possibles, voir les observations préliminaires du chapitre 3 ci-après ; voir également Abrantes-Metz et Bajari (2012) ; Abrantes-Metz (2012) ; et Hüschelrath et Veith (2011).

⁵ Les filtres ont certes pour objet de détecter les marchés et les résultats entachés de collusion pour que l'autorité de la concurrence mène une enquête approfondie, et non pas de prouver l'existence d'une entente, mais ils ont également permis d'obtenir (rarement, il est vrai) des preuves concrètes de pratiques

La présente note de synthèse examine dans un premier temps les rapports entre mesures réactives et proactives de détection des ententes et expose les raisons qui militent en faveur d'un dispositif de détection utilisant ces deux types de mesures de façon combinée et complémentaire. Elle explore dans un deuxième temps le rôle que les mesures proactives et les filtres peuvent jouer dans la détection et la dissuasion efficaces des ententes. On trouvera une description des principales caractéristiques des filtres structurels et comportementaux, une vue d'ensemble des principales théories concernant les filtres d'ententes élaborées dans les publications spécialisées, et un exposé sur la conception de filtres efficaces et les difficultés associées à leur mise en œuvre. Ce document contient également deux annexes : l'annexe 1 décrit certains filtres d'ententes proposés par les publications économiques et l'annexe 2 examine quelques expériences tirées de l'application de filtres structurels et comportementaux par les autorités de la concurrence et les autorités chargées de la réglementation afin de détecter les ententes et les autres types de fraudes et de manipulations.

2. Utilisation équilibrée des mesures réactives et proactives de détection des ententes

Le fait que de nombreux pays membres et non membres de l'OCDE se soient dotés d'une législation sur la concurrence témoigne des effets fort dommageables des ententes sur la société et de la nécessité d'adopter des mesures pour se prémunir contre ces pratiques et punir les coupables. Cependant, tout au moins dans les pays ayant mis en place des programmes de clémence et d'amnistie, les objectifs de la politique de mise en œuvre du droit de la concurrence sont au bout du compte la dissuasion (l'entreprise décide de ne pas recourir à des pratiques d'entente) et la cessation (l'entreprise décide de mettre fin à sa participation à une entente), plutôt que la punition⁶. C'est après tout pour cette raison que les sociétés acceptent d'accorder l'amnistie à l'entreprise qui confesse en premier sa participation à une entente, ce qui a pour effet d'intensifier les conflits d'intérêts entre les membres de l'entente, de déstabiliser celle-ci et, au bout du compte, de réduire purement et simplement les incitations à se livrer à ce genre de pratique.

La dissuasion et la cessation effectives des ententes sont fonction de la probabilité que celles-ci soient détectées et que leurs membres soient punis. Cependant, le caractère secret des ententes pose des difficultés considérables aux autorités de la concurrence, qui continuent elles-mêmes de réfléchir aux divers dispositifs qu'elles peuvent mettre en œuvre pour les détecter efficacement⁷. La détection des ententes se fait en gros de diverses manières, notamment à l'aide de méthodes proactives et réactives (voir graphique 1 ci-dessous⁸.)

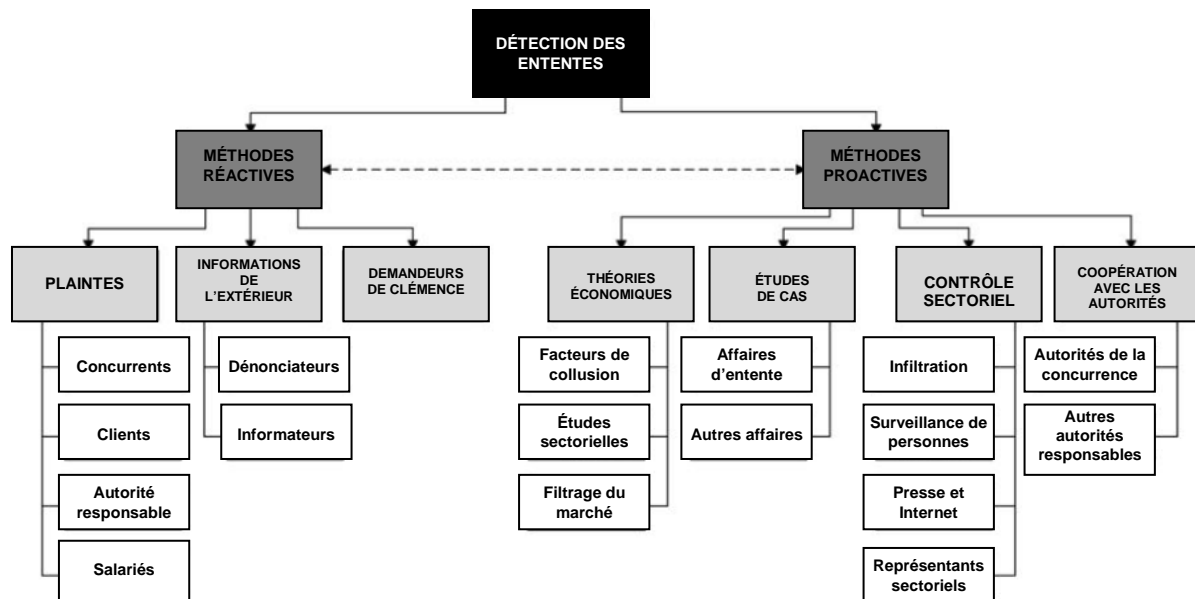
d'entente qui ont été présentées devant les tribunaux. L'affaire survenue au Mexique examinée à l'annexe 2 illustre bien ce cas de figure.

⁶ Par exemple, Friederiszick et Maier-Rigaud (2008) ; Spagnolo (2008) ; Harrington et Chang (2012), sont unanimes à souligner que la dissuasion est le principal objectif de la politique de mise en œuvre de la législation de la concurrence.

⁷ Par exemple, Schinkel (2008).

⁸ Pour une vue d'ensemble des différentes mesures de détection des ententes, voir RIC (2010).

Graphique 1 – Méthodes proactives et réactives de détection des ententes



Source : Hüschelrath (2010), d'après RIC (2010).

La *détection réactive* repose sur les informations ou les preuves communiquées aux autorités de la concurrence par des tiers. On estime que les programmes de clémence ou d'amnistie sont les plus efficaces à cet égard, en particulier parce qu'ils apportent aux autorités la preuve directe de l'existence d'une entente. Qui plus est, ces programmes facilitent l'enquête sur la pratique illicite et la punition des coupables. On parle au contraire de *détection proactive* lorsque l'autorité de la concurrence cherche de sa propre initiative à détecter des ententes au lieu de réagir à un événement déclencheur extérieur.

Il existe peu de données sur l'importance relative des méthodes de détection réactive et de détection proactive des ententes. Dans un article ayant fait date publié avant que les États-Unis n'adoptent leur programme d'amnistie, Hay and Kelley⁹ distinguent au moins douze méthodes réactives et proactives utilisées par le ministère américain de la Justice entre 1963 et 1972 pour détecter, au total, 49 ententes. Cependant, 70 % de ces ententes ont été mises au jour par l'un des moyens suivants : enquête d'un grand jury dans une autre affaire (24 %) ; plainte d'un concurrent (20 %) ; plainte d'un client (14 %) et plainte d'un organisme au niveau local, au niveau d'un État fédéré ou au niveau fédéral (12 %). Plus récemment, le RIC a constaté que la plupart des ententes sont encore découvertes à la suite des plaintes de clients et de concurrents¹⁰.

Les autorités de la concurrence utilisent diverses méthodes proactives comme l'observation des médias ou de la presse professionnelle, la surveillance de la participation des entreprises aux activités des associations professionnelles et de leur présence aux manifestations sectorielles et bien sûr – l'analyse

⁹ Hay et Kelley (1974).

¹⁰ RIC (2010). Les plaintes ne sont pourtant pas considérées comme un moyen de détection très efficace parce qu'elles fournissent rarement aux autorités de la concurrence des motifs suffisants pour déclencher une enquête et sont coûteuses à traiter car leur nombre peut être important. Dénonciateurs et informateurs peuvent aussi contribuer à la détection des ententes ; cependant, les informations communiquées par ces sources sont en règle générale datées ou biaisées.

économique et les filtres empiriques. Ces méthodes et les autres méthodes proactives nécessitent habituellement plus de ressources, sont plus coûteuses à mettre en œuvre, et leur taux de réussite, en termes de nombre d'affaires d'ententes qu'elles ont réellement permis de mettre au jour, semble assez faible¹¹. Certains auteurs soutiennent que les autorités de la concurrence doivent néanmoins investir davantage dans la détection proactive, en particulier dans la mise en œuvre à plus grande échelle des filtres empiriques. Dans les sections qui suivent, nous examinons les arguments qui militent en faveur d'un meilleur équilibre entre la détection réactive – qui prend principalement la forme de programmes d'amnistie et de clémence – et la détection proactive.

2.1 Le succès des programmes d'amnistie et de clémence

En offrant l'amnistie à la première entreprise qui coopère pleinement avec l'autorité de la concurrence ou un traitement plus clément aux entreprises qui se présentent ensuite, les programmes d'amnistie et de clémence visent à inciter les membres d'une entente à rapporter l'existence d'une entente et à produire la preuve de leur participation à cette entente¹². Dans de nombreux pays, ces programmes ont induit une augmentation sensible du nombre d'ententes détectées¹³. Ils semblent également avoir permis d'engager avec succès des poursuites dans des affaires d'ententes en fournissant aux autorités de la concurrence des preuves tangibles des atteintes au droit de la concurrence¹⁴. Voici quelques exemples des résultats obtenus grâce à ces programmes.

- Aux États-Unis, le premier programme d'amnistie adopté dans le cadre de la législation sur la concurrence date de 1973 mais n'a guère été efficace avant sa modification en 1993¹⁵. Aujourd'hui, le programme d'amnistie permet aux autorités d'accorder l'immunité de sanctions (peines d'amende et d'emprisonnement) aux personnes physiques et morales qui ont participé à des ententes anticoncurrentielles. Selon Werden *et al.*, « *plus de quatre-vingt-dix pour cent des amendes imposées depuis 1996 pour des violations de la Sherman Act peuvent être associées à des enquêtes menées avec la coopération de demandeurs de clémence ; en outre, les poursuites engagées avec la coopération de demandeurs de clémence ont représenté plus de quatre-vingt-dix pour cent des activités commerciales affectées par l'ensemble des ententes à l'encontre desquelles la Division a engagé des poursuites depuis 1999*¹⁶ ».

¹¹ Nous verrons qu'il faut également examiner les effets des méthodes de détection utilisées sur la dissuasion. En principe, l'application de méthodes très efficaces peut améliorer la dissuasion à un point tel qu'aucune entente n'est détectée.

¹² Cette description générale des programmes d'amnistie et de clémence est suffisante pour les besoins de la présente étude. Notons toutefois que si les programmes d'amnistie et de clémence reposent sur des notions similaires, leur conception et leur mise en œuvre diffèrent d'un pays à l'autre (voir par exemple Spagnolo (2008).) Pour plus de détails sur les différents types de programmes mis en place, voir OCDE (2012).

¹³ Friederiszick et Maier-Rigaud (2008) ; Harrington et Chang (2012) et références bibliographiques de ces auteurs.

¹⁴ RIC (2010).

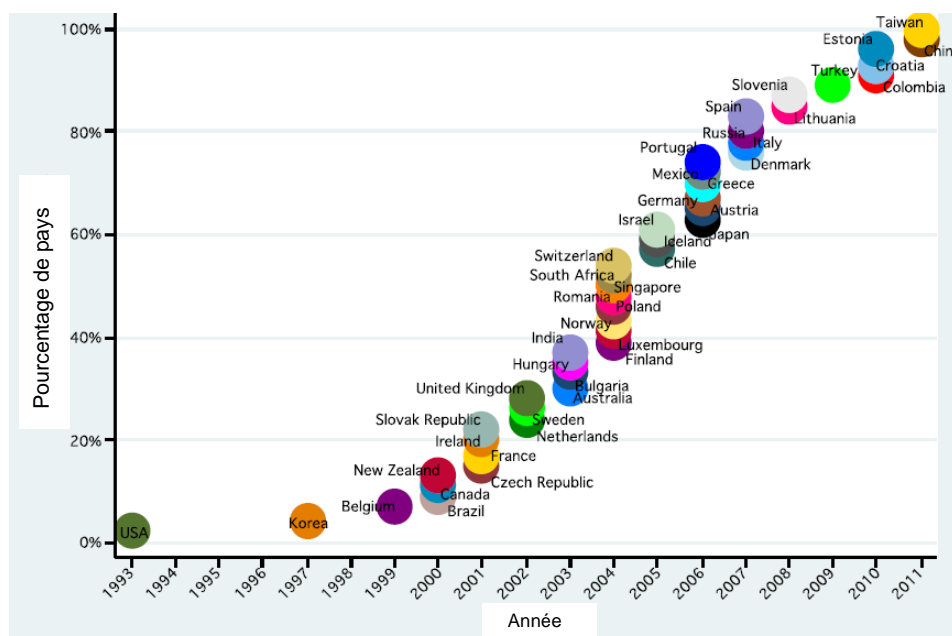
¹⁵ Depuis la révision de 1993, le ministère américain de la Justice peut accorder l'amnistie, même après l'ouverture d'une enquête, à condition « *de ne pas avoir reçu d'informations provenant d'une autre source au sujet de l'activité illicite* ». En d'autres termes, l'amnistie ne s'étend pas aux autres entreprises membres d'une entente. Les documents et informations concernant le programme de clémence des États-Unis sont consultables à l'adresse <http://www.justice.gov/atr/public/criminal/leniency.html>.

¹⁶ Werden, Hammond et Barnett (2012).

- L'Union européenne a adopté son premier programme de clémence en 1996 et l'a révisé en 2002 et en 2006¹⁷. À la suite de l'adoption de ce programme, la Commission européenne a reçu plusieurs demandes de clémence (environ 188 entre 1996 et 2002). Quarante-huit (88 %) des 52 décisions rendues dans des affaires d'entente entre 2002 et 2008 ont été déclenchées par une demande de clémence¹⁸.
- On observe des expériences similaires dans divers pays du monde. Harrington mentionne par exemple que la Commission sud-africaine de la concurrence reçoit en moyenne trois demandes de clémence par mois, soit davantage que la moyenne mensuelle de demandes d'amnistie présentées aux États-Unis. De même, l'Espagne a reçu sept demandes depuis l'introduction de son programme de clémence, le 28 février 2008¹⁹.

Les graphiques et le tableau ci-dessous illustrent la progression rapide de la participation aux programmes de clémence dans les pays membres et non membres de l'OCDE²⁰.

Graphique 2 – Participation aux programmes de clémence dans le monde



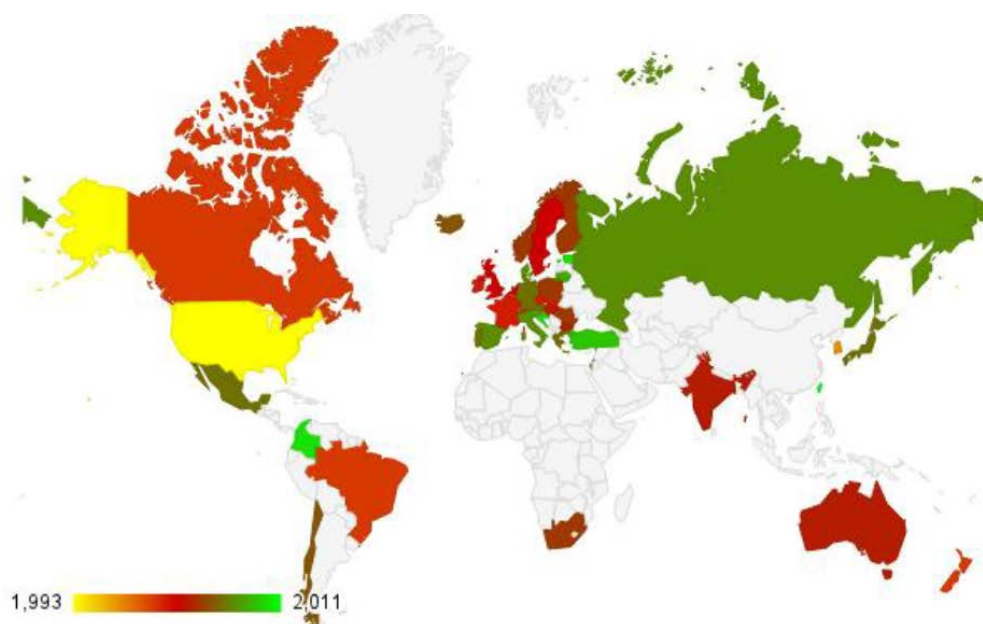
Source : Borrell, Jiménez et García (2012)

¹⁷ Voir Commission européenne, Communication de la Commission concernant la non-imposition d'amendes ou la réduction de leur montant dans les affaires portant sur des ententes, JO C 207/4 [1996] ; Commission européenne, Communication de la Commission sur l'immunité d'amendes et la réduction de leur montant dans les affaires portant sur des ententes, JO C 45/3 [2002] ; Commission européenne, Communication de la commission sur l'immunité d'amendes et la réduction de leur montant dans les affaires portant sur des ententes, JO C 298/17 [2006].

¹⁸ Parlement européen, Question parlementaires : réponse commune donnée par la commissaire Kroes au nom de la Commission européenne aux questions écrites E-0890/09 ; E-0891/09 ; et E-0892/09, le 2 avril 2009 ; Riley (2010).

¹⁹ Harrington (2010).

²⁰ Les graphiques et le tableau établis par Borrell, Jiménez et García (2012) ne prennent pas en compte le programme de clémence de l'UE adopté en 1999 puis révisé en 2002 et 2006.

Graphique 3 – Participation aux programmes de clémence dans le monde (carte)

Source : Borrell, Jiménez et García (2012)

Tableau 1 – Participation aux programmes de clémence dans le monde

		Pays dotés d'un programme de clémence	%
1998		2	3%
1999		2	3%
2000	Premiers pays	3	5%
2001		5	8%
2002		9	15%
2003		12	20%
2004	Pays intermé- diaires	16	27%
2005		25	42%
2006		28	47%
2007		34	58%
2008	Derniers pays	38	64%
2009		40	68%
2010		41	69%
2011		44	75%

Source : Borrell, Jiménez et García (2012) – Enquête réalisée d'après des données concernant 54 pays et des informations concernant les programmes de clémence publiées sur les sites Internet des autorités de la concurrence et du RIC

Les programmes d'amnistie et de clémence sont généralement considérés comme des outils d'enquête très efficaces²¹, et il semble que certaines autorités de la concurrence ont décidé d'y affecter la majeure partie de leurs ressources²². Certains auteurs défendent également l'idée selon laquelle les programmes de clémence ont eu un effet favorable sur les niveaux de cessation et de dissuasion des ententes, encore que cela soit difficile à mesurer. Par exemple, Borrell *et al.* affirment que la mise en œuvre des programmes de clémence a influé sur l'idée que se font les cadres des capacités de détection des autorités de la concurrence²³. À partir de données concernant 59 pays et portant sur une période de 14 ans, ces auteurs montrent que les programmes de clémence suscitent un renforcement de la perception de l'efficacité d'une ampleur comprise entre 10 et 21 %. Ils en concluent que les programmes de clémence sont devenus des « *armes de dissuasion massive* » pour les autorités de la concurrence, en particulier contre les différentes formes de collusion explicite, plus dommageables, qui sont mises en œuvre sur les marchés.

2.2 Limites des programmes d'amnistie et de clémence

Le succès remporté par les programmes d'amnistie et de clémence dans le monde a fait craindre que les autorités de la concurrence ne deviennent victimes de leur succès. Aux yeux de certains, les autorités de la concurrence sont impressionnées ou submergées par le nombre croissant de demandes d'amnistie et de clémence et d'affaires détectées et traitées avec succès grâce à ces programmes²⁴ et ne consacrent pas suffisamment d'attention et de ressources à la lutte proactive et indépendante contre les ententes. Cet excès de confiance à l'égard des programmes d'amnistie et de clémence peut, à long terme, amoindrir l'efficacité même de la lutte contre les ententes. Les programmes d'amnistie et de clémence sont conçus pour tirer parti des forces en jeu dans les ententes et jouer sur les incitations des entreprises, leurs conflits d'intérêts et leur crainte d'être découvertes, afin de les inciter à se dissocier d'une entente et à dénoncer leurs complices en échange d'une plus grande clémence. Cependant, si les autorités de la concurrence s'en remettent aux *seuls* programmes d'amnistie et de clémence pour détecter les ententes, celles-ci risquent de ne pas être mises au jour lorsque les incitations à s'en dissocier sont faibles²⁵. Il peut en être ainsi, par exemple, dans les petits pays où les entreprises concurrentes sont plus étroitement liées et où il existe encore de nombreuses entreprises familiales. Dans ces cas précis, les incitations à se dissocier d'une entente sont moins fortes et les outils de détection réactive, comme les programmes d'amnistie et de clémence, ne sont sans doute pas aussi efficaces. L'ajout d'un programme solide de détection proactive peut inciter davantage les entreprises à se prévaloir du programme d'amnistie et de clémence et, partant, renforcer l'efficacité de ce programme.

²¹ RIC (2010) ; et Miller (2009), pour ce qui est du programme d'amnistie des États-Unis.

²² Friederiszick Maier-Rigaud (2008).

²³ Borrell, Jiménez et García (2012). Voir aussi Chen et Harrington (2007), selon lesquels dans l'ensemble, la mise en œuvre des programmes d'amnistie et de clémence a un effet négatif sur la formation des ententes. Sur ce même point, voir également Aubert, Kovacic et Rey (2003) ; Motta et Polo (2003) ; Spagnolo (2003) ; Feess et Walzl (2004) ; Motchenkova (2004), et Harrington (2005). Cependant, certains auteurs ont mis en doute l'efficacité des programmes d'amnistie et de clémence pour ce qui est de la dissuasion et de la cessation des pratiques d'ententes (voir, par exemple, les travaux consacrés par Brenner (2009) et De (2010) au programme de clémence de la CE.)

²⁴ Harrington et Chang estiment, comme d'autres auteurs, que les principaux objectifs de la politique de la concurrence étant la cessation et la dissuasion des ententes, la réussite d'un programme d'amnistie et de clémence ne peut s'apprécier au seul regard du nombre d'affaires d'ententes qu'il a permis de traiter avec succès à la suite des demandes présentées. Voir Harrington et Chang (2012) et Spagnolo (2003).

²⁵ En dépit des succès obtenus récemment dans le monde dans le domaine de la lutte contre les ententes, de nombreuses ententes passent inaperçues. Combe, Monnier et Legal (2008), de même que Bryant et Eckard (1991), estiment ainsi que la probabilité annuelle moyenne de détection des ententes est d'environ 12.9 % dans l'UE et de 15 % aux États-Unis, ce qui est peu élevé.

Malgré les bons résultats des programmes d'amnistie et de clémence, des ententes continuent de se former et de fonctionner²⁶. Certaines études semblent indiquer que les ententes rentables présentent des perspectives de stabilité et de durée plus grandes, et que souvent, les ententes détectées dans le cadre des demandes de clémence sont déjà instables, par exemple à la suite d'un choc externe²⁷. La rareté des signalements spontanés d'ententes stables par le biais des programmes d'amnistie et de clémence tend peut-être à montrer l'efficacité limitée de ces programmes en matière de détection²⁸. Du point de vue du bien-être des consommateurs, il convient peut-être de s'interroger sur le bien-fondé d'une politique de mise en œuvre du droit de la concurrence comportant un biais en faveur de la recherche d'ententes « en fin de vie », par opposition à une politique axée sur la recherche active d'ententes qui demeurent fonctionnelles²⁹.

Pour conclure, les enseignements théoriques et pratiques laissent à penser que l'utilisation des seuls programmes d'amnistie et de clémence peut conduire à une faible probabilité de détection des ententes, et avoir une incidence négative sur la dissuasion. Le fait de privilégier ce type de programmes suscite des préoccupations³⁰ même lorsqu'un pays est amené à traiter un grand nombre d'affaires d'amnistie et de clémence. On peut sans doute atténuer certaines de ces préoccupations en améliorant la conception et la mise en œuvre des programmes d'amnistie et de clémence³¹, mais les autorités de la concurrence doivent examiner le rôle bénéfique des dispositifs de détection proactive dans l'amélioration de la détection des ententes, que ce soit directement ou par des incitations plus fortes à participer aux programmes d'amnistie et de clémence. Contrairement aux programmes d'amnistie et de clémence, les dispositifs de détection proactive ne reposent pas nécessairement sur les incitations données aux membres des ententes et ne sont pas tributaires des facteurs en jeu dans les ententes car c'est à l'autorité de la concurrence que revient la décision de les utiliser.

²⁶ Levenstein et Suslow (2012) ; et Abrantes-Metz et Bajari (2012).

²⁷ Abrantes-Metz et Bajari (2012) ; et Levenstein et Suslow (2012).

²⁸ Harrington (2008).

²⁹ Friederiszick et Maier-Rigaud (2008).

³⁰ Un autre sujet préoccupant est que les membres d'une entente peuvent en pratique recourir abusivement aux programmes d'amnistie et de clémence afin de maintenir la stabilité de l'entente, par exemple en menaçant leurs complices de présenter une demande d'amnistie ou de clémence. Voir sur ce point Spagnolo (2003) et Levenstein et Suslow (2012). Il arrive également que les programmes d'amnistie et de clémence soient mis en cause pour d'autres raisons qui n'ont pas forcément de rapport direct avec la probabilité de la détection (par exemple, lorsque ces programmes sont utilisés de manière abusive afin d'augmenter les coûts que devront assumer les anciens membres de l'entente une fois celle-ci démantelée et la concurrence revenue, ou lorsque les demandeurs engrangent des bénéfices supraconcurrentiels supplémentaires en pratiquant des prix inférieurs aux prix convenus dans le cadre de l'entente et présentent ensuite une demande d'amnistie ou de clémence (Schinkel, 2007). De nombreuses raisons militent contre l'importance exagérée donnée aux programmes d'amnistie et de clémence, mais il n'entre toutefois pas dans notre propos d'en faire état.

³¹ Il semble que certains problèmes fondamentaux concernant la conception et la mise en œuvre des programmes d'amnistie et de clémence fassent toujours débat (par exemple, la question de savoir s'il faut accorder la clémence au premier demandeur et ne pas l'étendre aux demandeurs suivants) ; voir par exemple la comparaison, par Spagnolo (2013), des programmes d'amnistie et de clémence en place aux États-Unis et dans l'UE. Les efforts déployés pour améliorer sans cesse la conception et la mise en œuvre des programmes d'amnistie et de clémence permettront peut-être d'atténuer certaines des préoccupations suscitées par le recours massif à ces programmes.

2.3 Les avantages du dosage des instruments de détection des ententes

Les dispositifs de détection proactive doivent être mis en œuvre non seulement en raison de leur qualités intrinsèques, mais parce qu'ils peuvent produire des externalités positives en termes d'amélioration de l'efficacité des programmes d'amnistie et de clémence³². S'ils sont bien conçus et appliqués³³, ils peuvent permettre aux autorités de la concurrence de détecter des ententes et d'ouvrir des enquêtes, sachant que les ententes en cause seraient demeurées stables si la détection s'était appuyée uniquement sur un programme d'amnistie et de clémence³⁴. Notons à cet égard que la probabilité qu'une entente soit détectée pèse considérablement sur la décision de coopérer des demandeurs d'amnistie ou de clémence. Par conséquent, si les autorités de la concurrence réussissent d'une manière ou d'une autre à renforcer la probabilité de détection des ententes, elles feront augmenter le nombre de demandes d'amnistie et de clémence. Autrement dit, si elles parviennent à susciter la crainte de la détection chez les participants à une entente, ceux-ci auront peut-être une raison de plus de cesser leurs activités et de s'inscrire sans tarder à un programme d'amnistie ou de clémence³⁵. Il serait donc possible de mettre en œuvre des dispositifs de détection proactive pour étayer et renforcer les programmes d'amnistie et de clémence.

Même dans les pays où ils ont rencontré un vif succès, les programmes d'amnistie et de clémence sont manifestement limités par le fait que les enquêtes dont ils permettent le déclenchement semblent concentrées sur assez peu de secteurs³⁶. Aux États-Unis, par exemple, les enquêtes menées à la fin des années 90 concernaient essentiellement les secteurs des denrées alimentaires et des aliments pour animaux, des vitamines et des produits chimiques. La concentration semble encore plus prononcée aujourd'hui qu'alors. Ces cinq dernières années, les trois principaux secteurs cibles ont été ceux des composants électroniques et informatiques, du transport aérien de fret et de passagers, et des pièces automobiles³⁷. Ce phénomène s'explique en partie seulement par la mise en œuvre du programme *Amnesty Plus*³⁸. Les outils de détection proactive peuvent aider les autorités de la concurrence qui se trouvent dans une situation similaire à étendre l'effet dissuasif des programmes de clémence au-delà des marchés où ceux-ci se révèlent efficace, et à faire en sorte qu'ils puissent s'appliquer à l'économie dans son ensemble.

Les tenants des dispositifs de détection proactive reconnaissent le succès des programmes d'amnistie et de clémence et leur rôle en matière de poursuites et de dissuasion et ne demandent pas leur abandon. Ils estiment plutôt qu'il faudrait en optimiser l'efficacité en y associant des initiatives de mise en œuvre proactive et des enquêtes d'office. Trouver un juste milieu entre l'engagement de poursuites dans le cadre des programmes d'amnistie et de clémence d'une part et la mise au jour des ententes grâce à des enquêtes

³² Harrington (2008).

³³ Voir section 3.2 du présent document.

³⁴ Friederiszick et Maier-Rigaud (2008).

³⁵ Friederiszick et Maier-Rigaud (2008). Voir aussi Schinkel (2008) et Harrington (2006), qui affirment que l'application de filtres empiriques proactifs peut inquiéter les entreprises au point de les inciter à présenter une demande d'amnistie ou de clémence.

³⁶ Klawiter (2012) ; Klawiter (2011).

³⁷ Klawiter (2011).

³⁸ Dans le cadre du programme *Amnesty Plus*, le ministère américain de la Justice peut se montrer clément à l'égard de l'entreprise qui dénonce des infractions non encore détectées à la législation relative à la concurrence et qui concernent une entente *différente* de la première entente portée à l'attention du ministère public. Le programme *Amnesty Plus* incite les entreprises qui font déjà l'objet d'une enquête à se mettre en règle et à signaler les violations du droit de la concurrence auxquelles elles ont pris part sur d'autres marchés.

d'office d'autre part pourrait contribuer de façon significative à la réussite d'un programme de lutte contre les ententes et améliorer le niveau général de dissuasion et de cessation. Notons toutefois que les arguments avancés contre l'utilisation excessive des programmes d'amnistie et de clémence et la sous-utilisation des mesures de détection proactive peuvent être invoqués en général pour appuyer l'application d'une politique de mise en œuvre proactive et d'autres dispositifs particuliers de détection proactive³⁹.

3. Détection des ententes au moyen de filtres empiriques

Les filtres d'ententes ne répondent à aucune définition générale. Certains théoriciens insistent sur leur fonction. Ainsi, Abrantez-Metz précise que le filtrage permet « *d'attirer l'attention sur les comportements illicites, à partir d'études économiques et statistiques*⁴⁰ ». D'autres définitions sont centrées sur la méthode utilisée ; selon Harrington, par exemple, « *le filtrage est un processus de repérage des secteurs propices aux ententes. [...] Les méthodes de filtrage sont conçues pour saisir le passage de l'absence de collusion à la collusion – en cherchant à déceler une modification radicale du comportement de l'entreprise – ou pour détecter une phase de collusion stable – autrement dit, ce qui différencie cette phase de celle où les entreprises se font concurrence*⁴¹ ».

Les filtres d'ententes sont des outils rentables qui permettent d'analyser des données et des informations économiques observables⁴², concernant par exemple différentes caractéristiques des produits et des marchés, les données sur les coûts, les prix, les parts de marché, différents aspects du comportement de l'entreprise, et pour attirer l'attention sur les marchés qui ont été affectés par la collusion ou qui sont plus susceptibles de l'être. Lorsque cette étude fait soupçonner la présence de collusion sur un marché particulier, l'autorité de la concurrence concernée peut envisager de mener une enquête détaillée (« stade des vérifications ») et s'il y a lieu, de mener une enquête d'office indépendante et à grande échelle afin de recueillir des preuves directes de l'entente, en réalisant à cette fin des perquisitions, des saisies et des interrogatoires de témoins (« stade des poursuites et des enquêtes »). Il n'est habituellement pas prévu d'utiliser les résultats obtenus au moyen du filtrage en tant qu'éléments de preuve du comportement illicite des entreprises, car le filtrage n'est qu'un dispositif permettant de mettre en évidence les marchés qui devraient faire l'objet d'un examen plus poussé, de hiérarchiser les plaintes ou de concentrer les enquêtes sur certains marchés, personnes morales ou personnes physiques⁴³.

³⁹ Dans un article récent, Abrantes-Metz affirme qu'une politique efficace de mise en œuvre du droit de la concurrence doit comprendre six éléments à caractère proactif et réactif : sensibilisation des milieux d'affaires aux problèmes liés au droit de la concurrence ; diffusion d'orientations précises sur les échanges horizontaux d'informations ; programmes de clémence ; programmes de filtrage ; incitations en faveur d'une gouvernance d'entreprise efficace ; octroi de récompenses aux dénonciateurs. Voir Abrantes-Metz (2013).

⁴⁰ Abrantez-Metz (2013).

⁴¹ Harrington (2006).

⁴² Précisons que pour les besoins de notre étude, les termes « données et informations observables » excluent toute preuve directe de l'existence d'une entente illicite du type qui est habituellement révélé aux autorités de la concurrence par le seul biais des demandes d'amnistie ou de clémence, des dénonciations, de la saisie de documents dans le cadre d'une descente à l'aube, ou de l'utilisation de toute autre méthode conçue pour révéler des preuves directes de l'existence d'une entente explicite illégale qui serait autrement restée secrète.

⁴³ Cependant, les filtres peuvent aussi permettre d'obtenir des éléments de preuve qui pourront être utilisés comme preuves indirectes d'un accord collusif. Voir l'examen du cas du Mexique à l'annexe 2.

**Encadré 1 – Utilisation des filtres à des fins autres que la détection
des ententes par les autorités de la concurrence**

Au-delà de la détection des ententes par les autorités de la concurrence⁴⁴, les filtres peuvent servir à plusieurs usages. Les travaux sur ce sujet montrent qu'ils peuvent se révéler utiles dans les domaines suivants :

- Les filtres peuvent renforcer les programmes de conformité et d'audit⁴⁵ : à l'instar des programmes de détection des ententes mis en place par les autorités de la concurrence, les programmes de conformité des entreprises sont conçus pour permettre à celles-ci de détecter les éventuelles violations de la législation et d'adopter les mesures nécessaires pour assurer la conformité, y compris en introduisant des demandes d'amnistie ou de clémence. Grâce aux dispositifs de filtrage, les entreprises peuvent repérer les domaines à risque élevé ou les pans d'activités dans lesquels des ententes ont peut-être été formées⁴⁶. Cela leur permet donc de répartir plus efficacement les ressources consacrées à la conformité. L'application de filtres dans le cadre des programmes de conformité peut être particulièrement efficace parce qu'elle peut faire fond sur des données internes de l'entreprise auxquelles les autorités de la concurrence n'ont pas toujours accès.
- Les filtres peuvent faire partie du dispositif de vigilance mis en œuvre dans le cadre des opérations de fusion et d'acquisition⁴⁷ : les audits que réalisent les avocats avant que leurs clients procèdent à des fusions et à des acquisitions peuvent aider ceux-ci à détecter les comportements illicites, les manipulations ou les fraudes de la société cible. L'acquéreur peut donc mieux évaluer les risques de violation du droit de la concurrence et de la réglementation auxquels la société cible est peut-être exposée. Cette activité de filtrage peut en outre être étayée avec profit par un ensemble considérable de données puisque l'avocat a accès à toutes les données et informations concernant la société cible au cours de la période d'application du dispositif de vigilance qui précède la fusion.

⁴⁴ Les filtres peuvent également aider les autorités chargées de l'application du droit de la concurrence à gérer plus judicieusement les rares ressources qui sont à leur disposition, par exemple en leur permettant de justifier le rejet des plaintes nettement infondées concernant des ententes présumées et de se concentrer sur les affaires qui ont les meilleures chances de succès. Voir par exemple l'examen du cas du Brésil à l'annexe 2.

⁴⁵ Abrantes-Metz (2012) ; Abrantes-Metz (2011) ; Abrantes-Metz, Bajari et Murphy (2010) ; Klawiter (2012) ; Hüschelrath et Veith (2011a et 2011b).

⁴⁶ Par exemple, Hüschelrath et Veith (2011.a et 2011.b) examinent un ensemble de données librement accessibles et de données privées concernant quelque 340 000 transactions commerciales réalisées par 36 petits et gros clients de certains cimentiers allemands afin d'étudier le processus de fixation des prix qui avait cours pendant et après l'entente conclue entre ces cimentiers en Allemagne. Ils vérifient l'ampleur de l'écart entre les prix bruts et les prix nets pendant et après l'entente et cherchent à établir si, et dans quelle mesure, les processus de fixation des prix des membres de l'entente et de leurs concurrents ont présenté des différences pendant et après l'entente. Leur étude révèle que les prix bruts comme les prix nets étaient sensiblement plus élevés pendant la période d'entente qu'en dehors de cette période. En outre, la comparaison des prix bruts montre que les membres de l'entente ont maintenu des prix bruts sensiblement plus élevés que leurs concurrents pendant la période qui a suivi l'entente. Comme les prix bruts sont communiqués aux associations professionnelles et aux offices statistiques et qu'ils peuvent aussi être utilisés par les autorités de la concurrence dans le cadre des procédures de surveillance des marchés, les membres de l'entente avaient tout intérêt à maintenir ces prix élevés pendant l'entente, mais aussi après son démantèlement. L'étude n'a pas noté d'écart entre les prix nets facturés par les membres de l'entente et leurs concurrents après le démantèlement de l'entente. Du point de vue de l'action des pouvoirs publics, les auteurs concluent que s'ils avaient disposé de filtres de prix, les gros clients des cimentiers auraient pu détecter l'existence de l'entente *avant* l'autorité de la concurrence. Le fait que les filtres permettent de détecter rapidement les ententes a donc plusieurs implications non négligeables pour la stratégie commerciale de ces gros clients, puisque leur utilisation aurait permis de réduire facilement le coût d'un composant essentiel.

⁴⁷ Klawiter (2012).

- Les filtres peuvent se révéler utiles dans le cadre des enquêtes menées par les autorités publiques ou lors des litiges⁴⁸ : lorsque les entreprises font l'objet d'une enquête des autorités (par exemple, après une descente à l'aube) ou doivent répondre à une demande d'information, les filtres peuvent se révéler très efficaces pour les aider à se concentrer sur le comportement, la chronologie et la durée de la violation alléguée et à planifier efficacement l'enquête interne. De même, en cas de litige, les filtres peuvent apporter aux avocats des informations précieuses pour élaborer leur stratégie de défense. Dans ce cas, les filtres peuvent aider à restreindre la portée de la violation alléguée, sa durée ou les groupes de clients affectés. Du côté de la poursuite ou du plaignant, les résultats du filtrage peuvent être utilisés pour démontrer aux décideurs la plausibilité de la collusion ou d'autres manipulations.
- Dans le cadre des actions privées, les filtres peuvent aider le plaignant à quantifier les dommages causés par une entente, sachant qu'il s'agit d'une analyse très ardue⁴⁹. On calcule habituellement les dommages découlant d'un comportement anticoncurrentiel en multipliant la différence entre le prix facturé par les membres de l'entente et celui qui aurait été pratiqué en l'absence d'entente (le prix de concurrence) par les volumes de ventes respectifs. Les filtres peuvent servir à la détermination du prix de concurrence⁵⁰.

Les filtres de marchés sont fondés sur un corpus croissant d'études économiques et sur l'élaboration de modèles théoriques de concurrence et de collusion, ainsi que sur l'analyse de données disponibles relatives aux marchés sur lesquels la concurrence est solide et aux marchés dont on sait qu'ils ont été affectés par la collusion. Ces études ont permis aux économistes d'élaborer des méthodes pour analyser différents aspects des résultats des entreprises et des marchés par rapport à des aspects comparables en situation concurrentielle ou non concurrentielle et à rechercher dans les données des indicateurs (ou marqueurs) particuliers de collusion, de systèmes suspects et d'anomalies qui sont soit incompatibles avec la concurrence, soit associés à des pratiques de collusion.

On distingue deux méthodes générales de filtrage des ententes.⁵¹ La première, dite « structurelle », consiste habituellement à appliquer des filtres sur une série de secteurs ou de marchés afin de repérer ceux qui présentent des caractéristiques les prédisposant davantage aux pratiques de collusion. La deuxième, dite « comportementale », vise à attirer l'attention sur le comportement des entreprises ou les résultats sur le marché qui pourraient faire soupçonner que les entreprises ont, de fait, eu recours à la collusion. Certains cadres généraux proposés dans les publications spécialisées combinent ces deux approches.

3.1 *Filtres structurels*

Le filtrage structurel consiste habituellement à chercher, à l'échelle d'un secteur d'activité ou d'un marché, des caractéristiques dont on sait qu'elles facilitent la formation d'ententes ou qui ont été observées dans des secteurs déjà affectés par des pratiques d'entente. À la différence du filtrage comportemental, l'examen porte non pas sur le comportement des entreprises ou les résultats sur le marché, mais plutôt sur les conditions structurelles (du produit et du marché) dans lesquelles des accords de collusion sont davantage susceptibles d'être mis en œuvre et de prospérer. Dans le cadre de la lutte contre les ententes, les filtres structurels peuvent avoir deux objets principaux. Premièrement, ils peuvent être utiles pour établir une liste préliminaire des secteurs d'activité qu'il conviendrait d'examiner plus attentivement⁵². Diverses

⁴⁸ Klawiter (2012).

⁴⁹ OCDE (2011).

⁵⁰ Harrington (2006).

⁵¹ Harrington (2008).

⁵² Les filtres structurels peuvent servir à d'autres fins que le filtrage systématique des secteurs d'activité. Par exemple, ils peuvent simplifier le traitement des plaintes lorsque la qualité et la quantité des informations

méthodes proactives peuvent ensuite être utilisées pour assurer un suivi, notamment le filtrage comportemental. Deuxièmement, les filtres structurels peuvent être utilisés en complément des dispositifs de détection réactive en permettant aux autorités de la concurrence de concentrer leurs ressources sur les affaires déclenchés à l'origine par le dépôt d'une plainte et qui offrent le plus de perspectives favorables.

Dans la plupart des cas, les filtres structurels sont plutôt simples à appliquer. Ils ne nécessitent pas d'analyse économétrique complexe ou de formation poussée du personnel. En outre, ces filtres requièrent habituellement des données déjà disponibles ou faciles à recueillir. Autre avantage, les membres des ententes peuvent très difficilement, voire pas du tout, les contourner⁵³. Cependant, les filtres structurels se bornent à attirer l'attention sur les marchés *exposés* à la collusion, et ne fournissent donc aux autorités de la concurrence aucun élément de preuve, même préliminaire, de collusion⁵⁴. Par conséquent, on peut avancer qu'ils jouent un rôle limité dans la détection et la dissuasion des ententes et que les entreprises fautives ne doivent pas se soucier outre-mesure de les contourner, ce qui fait qu'au bout du compte, les autorités de la concurrence pourraient bien se retrouver avec une longue liste de secteurs méritant un examen plus attentif.

Encadré 2 – Analyse structurelle des effets coordonnés dans le cadre du contrôle des fusions

Les autorités de la concurrence connaissent bien la méthode des filtres structurels car c'est cette même méthode qui sous-tend l'analyse à laquelle elles procèdent pour apprécier le risque d'effets coordonnés des fusions qui leur sont notifiées. Les lignes directrices et les avis de projets de fusion adoptés par les autorités de la concurrence mentionnent spécifiquement les caractéristiques structurelles qui rendent certains marchés plus propices à la collusion.

Ainsi, les Lignes directrices sur l'appréciation des concentrations horizontales publiées par la Commission européenne⁵⁵ prévoient que lors de l'évaluation de la probabilité d'effets coordonnés, la Commission tient compte de toutes les informations pertinentes et disponibles quant aux caractéristiques des marchés concernés, notamment celles concernant la structure des marchés et le comportement passé des entreprises. S'agissant des facteurs structurels pris en compte par la Commission européenne, les Lignes directrices précisent qu'« *une coordination est plus aisée (...), entre un petit nombre d'entreprises qu'entre un grand nombre. Il est également plus facile de coordonner les prix d'un produit unique et homogène que lorsqu'il existe des centaines de prix sur un marché où se vendent de nombreux produits différenciés. De même, il est moins difficile de coordonner les prix lorsque les conditions de la demande et de l'offre sont relativement stables que lorsqu'elles ne cessent de changer. Dans ce contexte, une demande très instable, une forte croissance interne de certaines entreprises du marché ou encore l'entrée fréquente sur le marché de nouveaux concurrents peuvent indiquer que la situation actuelle n'est pas suffisamment stable pour rendre probable une coordination des comportements. Sur des marchés marqués par l'importance de l'innovation, la coordination peut être plus difficile dès lors que les innovations, en particulier celles qui sont majeures, peuvent conférer à une entreprise un avantage considérable sur ses rivaux* »⁵⁶.

fournies à l'autorité de la concurrence par le plaignant laissent à désirer. En mettant en évidence les marchés plus ou moins fortement exposés à la collusion, les filtres structurels permettent aux autorités de la concurrence de hiérarchiser efficacement l'examen des plaintes en fonction des risques de collusion.

⁵³ Par exemple, il est peu probable que les membres d'une entente facilitent l'entrée simplement pour augmenter le nombre de concurrents et réduire de ce fait l'IHH, ou pour éliminer les dispositifs qui facilitent la coordination, comme les associations professionnelles.

⁵⁴ Évoquons simplement le fait que certaines ententes ont été formées et ont été à l'œuvre dans des secteurs d'activité qui n'ont pas forcément été mis en évidence par les filtres structurels. C'est donc dire que les filtres structurels peuvent produire des faux négatifs.

⁵⁵ In [2004] JO C 031, p. 5.

⁵⁶ Voir paragraphe 42.

De même, les lignes directrices sur les fusions horizontales (*Horizontal Merger Guidelines*) adoptées en 2010 par la *Federal Trade Commission* (FTC) et le ministère de la Justice des États-Unis⁵⁷ rappellent qu'un marché est plus vulnérable aux effets coordonnés « si les conditions offertes aux clients sont relativement transparentes » et que « la transparence des prix peut être plus grande pour des produits relativement homogènes ». La coordination des comportements est aussi considérée comme probable « lorsqu'il y a peu de concurrents importants [et] que les produits du marché en cause sont relativement homogènes ». Les autres facteurs qui, selon ces lignes directrices, peuvent avoir un effet sur la coordination des comportements, sont l'innovation technologique, l'élasticité de la demande et le pouvoir d'achat.

Au Royaume-Uni, les lignes directrices sur l'appréciation des fusions (*Merger Assessment Guidelines*) publiées conjointement par la *Competition Commission* et l'*Office of Fair Trading* (OFT) en 2010⁵⁸ précisent que « lors de l'évaluation des effets coordonnés, les autorités analysent les caractéristiques du marché qui sont propices à la coordination ». Ces lignes directrices examinent également les facteurs que ces deux organismes peuvent prendre en compte pour déterminer si les entreprises concernées seraient en mesure de conclure un accord de coordination, notamment « le nombre d'entreprises présentes sur le marché - la conclusion d'un accord est d'autant plus aisée que ce nombre est faible ; et la complexité du contexte dans lequel les entreprises évoluent - plus la situation est complexe, plus les entreprises auront de la difficulté à parvenir à un accord (en particulier un accord de coordination tacite). »

Les recherches théoriques ont mis en évidence de nombreux facteurs qui peuvent influencer sur les gains et coûts potentiels – et, par conséquent, sur la rationalité et la stabilité – des ententes et de la collusion⁵⁹. Ces facteurs se répartissent entre les facteurs structurels, les facteurs liés à l'offre et les facteurs liés à la demande. Les facteurs structurels qui facilitent la collusion sont le faible nombre de concurrents, les obstacles importants à l'entrée, la communication fréquente entre les entreprises (par exemple dans le cadre d'appels d'offres répétés) et la transparence du marché. Les facteurs liés à la demande sont la stabilité des conditions de la demande, la faible élasticité de la demande, le pouvoir d'achat et l'absence d'effets de club ou de réseau. Enfin, les facteurs liés à l'offre sont la maturité du secteur, la lenteur du rythme de l'innovation, la symétrie des coûts et la possibilité de mise en commun des coûts, la symétrie des capacités, l'homogénéité des produits, les contacts multi-marchés, les liens structurels, des antécédents de comportements anticoncurrentiels, ainsi que des rapports contractuels fréquents entre concurrents (par exemple, des accords de coopération).

3.1.1 Facteurs structurels

Les publications économiques ont recensé un certain nombre de caractéristiques structurelles qui font que les marchés sont plus prédisposés à la collusion. La concentration d'un marché augmente les risques de collusion. Plus les concurrents sont nombreux, plus la coordination est difficile⁶⁰. Plus le nombre de concurrents réels (et potentiels) augmente, plus les incitations à la collusion diminuent et plus les risques de non-respect s'accroissent (les gains à court terme du non-respect augmentent, tandis que l'avantage à long terme procuré par la collusion diminue⁶¹.)

⁵⁷ Consultable à l'adresse <http://www.justice.gov/atr/public/division-update/2011/merger-guidelines.html>.

⁵⁸ Consultable à l'adresse http://www.oft.gov.uk/shared_of/mergers/642749/OFT1254.pdf.

⁵⁹ Parmi les nombreuses études sur cette question, voir Rey (2006) ; Grout et Sonderegger (2005) ; Grout (2006) ; ABA (2010) ; et RIC (2010).

⁶⁰ Tirole (1988) ; Bain (1956).

⁶¹ Premièrement, un petit nombre de participants parvient plus facilement à s'entendre sur les modalités de l'accord de collusion. Deuxièmement, ce faible nombre facilite la surveillance des déviations. Troisièmement, plus les entreprises sont nombreuses, moins leur part du marché est importante. Cela

Sur les marchés où l'entrée est difficile ou coûte plus cher en raison d'importants obstacles (économiques ou juridiques), il est probable que les efforts déployés pour maintenir des prix supérieurs aux prix de concurrence seront davantage récompensés. Si l'entrée sur le marché est relativement peu coûteuse et probable, le bénéfice réalisé grâce aux prix supérieurs au niveau concurrentiel attirera sans doute très fortement de nouveaux entrants (stratégies d'entrée pour une courte période ou de « *hit and run* »). La rentabilité de l'entente s'en trouvera érodée et la perspective d'entrées futures réduira vraisemblablement la possibilité de représailles.

Sur les marchés où les concurrents ont des contacts fréquents, les ententes sont plus durables⁶². Les communications fréquentes entre entreprises fournissent davantage d'occasions aux membres d'une entente d'observer le comportement de leurs concurrents et de punir ceux qui ne respectent pas l'entente (c'est-à-dire que le temps de réaction aux déviations est plus court.) Par conséquent, les représailles sont plus rapides et les menaces de rétorsion, plus crédibles.

La transparence du marché augmente la probabilité de collusion⁶³. Les ententes ne peuvent fonctionner que si leurs membres ont accès aux informations qui leur permettent de contrôler la mise en œuvre des accords et d'exercer rapidement des représailles lorsque l'un d'eux pratique secrètement des prix plus bas que les autres. Il faut donc que le non-respect puisse être détecté à bref délai et que les autres entreprises puissent réagir promptement. Sur les marchés où le comportement des différentes entreprises n'est pas facilement observable et ne peut pas facilement être déduit d'après les données de marché disponibles, les déviations stratégiques sont plus probables et la collusion plus difficile.

3.1.2 Facteurs intervenant du côté de l'offre

Les secteurs d'activité parvenus à maturité et qui innovent peu sont plus prédisposés aux ententes stables. L'innovation restreint les possibilités de collusion car les entreprises ont davantage d'incitations à vendre leurs nouveaux produits qu'à recourir à cette pratique et à partager le marché avec leurs concurrents. De plus, la perspective de l'innovation réduit la valeur de la collusion future et le coût d'éventuelles représailles⁶⁴.

Des concurrents peuvent plus facilement recourir à la collusion lorsqu'ils ont des coûts et/ou des structures de coûts similaires. Rey dégage trois raisons qui font que les ententes sont plus complexes lorsque les membres assument des coûts différents⁶⁵. Premièrement, l'asymétrie des coûts peut compliquer la conclusion d'une entente sur une politique des prix commune, étant donné que les entreprises ayant le coût marginal le plus bas insisteront pour pratiquer des prix inférieurs à ceux que les entreprises à coût marginal plus élevé souhaitent maintenir ; de manière plus générale, des structures de coûts différentes peuvent effacer les « axes de convergence », ce qui exacerbe les problèmes de coordination. Deuxièmement, pour les besoins de l'efficacité technique, il faudrait attribuer des parts de marché aux entreprises ayant un coût marginal peu élevé, ce qui peut être difficile en l'absence de compensation parallèle. Troisièmement, les entreprises qui assument le coût le plus bas peuvent être davantage tentées de ne pas respecter l'entente, parce qu'elles ont plus à gagner à facturer des prix inférieurs à ceux de leurs concurrents et qu'elles ont sans doute moins à craindre d'éventuelles représailles de la part des entreprises dont les coûts sont plus élevés.

augmente les incitations à ne pas respecter l'entente et diminue la crainte de représailles et, partant, rend la collusion plus difficile à maintenir (voir Grout (2006.)

⁶² Snyder (1996).

⁶³ Stigler (1964) et Green et Porter (1984).

⁶⁴ Ivaldi, Jullien, Rey, Seabright et Tirole (2003).

⁶⁵ Rey (2006).

La répartition asymétrique des capacités de production est un facteur qui peut faire obstacle à la collusion puisque l'entreprise qui dispose de la plus grande capacité de production aura davantage d'incitations à pratiquer des coûts inférieurs à ceux de ses rivales, en particulier si les capacités de production de ces dernières limitent leur pouvoir de représailles⁶⁶.

La nature du produit peut aussi influencer sur la probabilité de collusion. Il est beaucoup plus facile pour les entreprises qui proposent des produits homogènes de s'entendre sur une politique tarifaire commune⁶⁷. La différenciation des produits, au contraire, peut contribuer à réduire la transparence du marché et, partant, rendre la collusion moins viable dans la durée.

Des concurrents qui se rencontrent sur plusieurs marchés (contacts multi-marchés) ont plus de facilité à faire durer la collusion⁶⁸. Les contacts multi-marchés rendent les échanges entre entreprises plus fréquents et augmentent les possibilités de représailles en cas de non-respect. Ces contacts permettent également la mise en œuvre d'ententes sur des marchés dont les caractéristiques ne les prédisposeraient normalement pas à ces pratiques.

Les liens structurels entre concurrents peuvent faciliter la collusion étant donné qu'ils ont des incidences sur les incitations à se faire concurrence. Les participations croisées (et même les participations minoritaires passives ne donnant pas le contrôle) peuvent réduire les gains obtenus grâce à la pratique de prix inférieurs à ceux des autres entreprises et favorisent de ce fait des stratégies d'alignement des prix⁶⁹. Il y a donc une plus grande probabilité de collusion sur les marchés où il existe des liens structurels entre les concurrents.

Même en l'absence de liens structurels, la conclusion d'accords de coopération et/ou d'autres relations contractuelles (par exemple des crédits financiers) entre concurrents peut influencer sur la probabilité de collusion. Ces relations contractuelles peuvent par exemple accroître les possibilités de représailles et, partant, la capacité de rétorsion à l'égard des entreprises qui ne respectent pas l'entente. Ces arguments peuvent également avoir un impact direct sur les stratégies tarifaires des entreprises et sur leurs incitations générales à se faire concurrence.

3.1.3 *Facteurs intéressant le côté de la demande*

Un certain nombre de facteurs du côté de la demande peuvent influencer sur la probabilité de collusion sur un marché donné.

La collusion est plus facile à maintenir sur des marchés où la demande est en augmentation et où les bénéfices attendus sont supérieurs à ceux du moment. La menace de représailles est plus forte lorsque la demande augmente parce que les entreprises préfèrent renoncer aux gains à court terme (procurés par la déviation), sachant que le coût des représailles futures sera plus élevé.

⁶⁶ Le rôle des contraintes de capacité dans la formation des ententes est ambigu. D'un côté, une entreprise ayant des contraintes de capacité a moins à gagner à pratiquer des prix plus bas que ses rivales étant donné qu'elle ne peut satisfaire qu'une partie de la demande supplémentaire qui s'ensuivra. De l'autre, les contraintes de capacité restreignent le pouvoir de représailles des entreprises. En effet, la punition la plus sévère que les entreprises peuvent envisager est de produire à pleine capacité. Voir Brock et Scheinkman (1985) ; Compte, Jenny et Rey (2002).

⁶⁷ Chang (1991) ; Ross (1992).

⁶⁸ Edwards (1955) ; Bernheim et Whinston (1990).

⁶⁹ OCDE (2008) ; Malueg (1992) ; Gilo (2005).

De même, la collusion est plus durable sur les marchés qui ne sont pas sujets à de fortes fluctuations de la demande étant donné que les périodes de pointe augmentent les gains à court terme de la déviation par rapport au coût potentiel de représailles futures⁷⁰.

Les publications spécialisées ne précisent pas si l'élasticité de la demande a un impact sur la durabilité des prix de collusion. Cependant, la collusion est plus rentable lorsque l'élasticité de la demande est faible, ce qui peut de même influencer la volonté des entreprises de former une entente, et faciliter la stabilité de cette dernière à long terme.

Lorsque les consommateurs ont un gros pouvoir d'achat, les membres d'une entente peuvent difficilement imposer des prix élevés, ce qui rend l'activité illicite moins rentable. Le pouvoir d'achat influe d'emblée sur les incitations des entreprises à conclure un accord de collusion⁷¹.

3.2 *Filtres comportementaux*

Le filtrage comportemental se rapporte aux diverses méthodes conçues pour indiquer si des entreprises ont mis en œuvre des pratiques collusives ayant effectivement eu des incidences sur un marché particulier. Il permet de décrire une situation de concurrence ou de collusion éventuelle sur un marché particulier à partir de l'analyse de diverses variables telles que les prix, les quantités, les parts de marchés, les décisions en matière de soumissions, etc. Dans le cadre de cette approche fondée sur le « comportement » ou les « résultats », les économistes examinent le comportement des marchés et des participants et appliquent des filtres afin d'évaluer si un comportement observé peut plus ou moins correspondre à une collusion ou au contraire, au respect des règles de concurrence. Selon Harrington, l'évaluation du comportement « *porte principalement sur l'impact de la coordination sur le marché ; les profils de prix ou de quantités ou certains autres aspects du comportement du marché peuvent faire naître des soupçons* »⁷².

⁷⁰ Les fluctuations de la demande empêchent la collusion, en particulier lorsqu'elles sont déterministes (par exemple dans le cas des cycles saisonniers, lorsque les prévisions sont à la baisse) plutôt qu'aléatoires. Parmi les nombreux ouvrages parus sur les fluctuations de la demande et la collusion, voir Rotemberg et Saloner (1986) ; Haltiwanger et Harrington (1991) ; Bagwell et Staiger (1997) ; et Staiger et Wolak (1992).

⁷¹ Snyder (1995) ; Compte (2000).

⁷² Harrington (2006).

3.2.1 Conception de filtres comportementaux efficaces

L'efficacité des filtres comportementaux pour signaler les possibles manipulations ou conspirations est essentiellement fonction de leur conception. Abrantes-Metz estime que celle-ci doit reposer sur l'un des deux principes fondamentaux suivants⁷³ :

- Des événements improbables ou inhabituels peuvent être un signe de manipulation ou d'action concertée si on ne peut les expliquer autrement que par les pratiques coordonnées des acteurs du secteur⁷⁴.
- La comparaison du comportement adopté par des personnes ou des groupes dans des situations similaires peut mettre en évidence une manipulations ou une conspiration⁷⁵.

Les filtres doivent être conçus de telle sorte que leur application soit aussi simple et économique que possible, mais qu'il soit onéreux de les contourner, de préférence au point où les entreprises doivent assumer, pour ne pas être découvertes, un coût si élevé qu'il décourage tout bonnement la collusion⁷⁶. La conception de filtres efficaces et robustes est toutefois difficile. Il faut une bonne connaissance de la situation du marché et du secteur considérés. Un filtre élaboré pour un marché possédant certaines caractéristiques ne permettra sans doute pas de mettre en évidence des manipulations et des complots sur un marché n'ayant pas les mêmes caractéristiques. Il n'existe malheureusement pas de filtre « universel » et il importe donc de concevoir des filtres spécifiques pour chaque marché. À cet égard, Abrantes-Metz distingue six éléments essentiels en rapport avec la conception et l'application d'un filtre comportemental efficace⁷⁷ :

1. connaissance du marché considéré, notamment du type de concurrence qui y existe et des incitations possibles à tricher ;
2. idée de la teneur probable de la tricherie ;
3. idée de la manière dont la tricherie affectera les résultats sur le marché ;

⁷³ Par exemple, Abrantes-Metz, 2013.

⁷⁴ Certains filtres sont conçus pour repérer des éléments improbables dans des conditions de marché normales. Les éléments observés peuvent donner à penser qu'il y a eu ingérence artificielle dans le cours normal des affaires et attirer l'attention sur un système de collusion. Par exemple, il est fort peu probable que de nombreux participants à une adjudication présentent une soumission identique. Pour illustrer ce principe, Abrantes-Metz cite l'exemple de la détection des tricheurs dans un casino. Si la probabilité de gagner à la roulette est d'environ 0.5 %, le croupier est alerté si un joueur gagne vingt fois de suite. La probabilité statistique d'un tel scénario est à peu près nulle (mais non inexistante). Le croupier ne peut sans doute pas prouver la tricherie mais peut surveiller le joueur de plus près afin d'éviter des pertes supplémentaires pour l'établissement. Voir Abrantes-Metz (2013).

⁷⁵ Pour illustrer ce principe, Abrantes-Metz mentionne une affaire de soumissions concertées sur le marché du ciment à New York. Pendant les années 1980, le prix du béton, dans cette ville, était supérieur de 70 % aux prix pratiqués dans les autres villes américaines. Il peut certes y avoir des écarts de prix entre des zones géographiques, mais des écarts de 70 % sont rares et anormaux. Cela peut faire penser qu'il y a peut-être un problème de concurrence. Voir Abrantes-Metz (2013).

⁷⁶ Selon Abrantes-Metz et Bajari, un filtre efficace doit dans l'idéal posséder quatre caractéristiques : (i) il doit produire le moins de faux positifs et de faux négatifs possible ; (ii) il doit être facile à appliquer ; (iii) il doit être conçu de manière à ce que la dissimulation d'un comportement illicite coûte cher ; et (iv) il doit s'appuyer sur des bases empiriques. Ces éléments sont abordés plus loin (Abrantes-Metz et Bajari, 2012).

⁷⁷ Abrantes-Metz (2013) ; Abrantes-Metz (2011).

4. ensemble de statistiques permettant de saisir les implications de la tricherie tout comme les relations ordinaires et naturelles entre les principales variables du marché ;
5. base empirique ou théorique pour le filtre ; et
6. définition d'un point de repère approprié et non entaché d'irrégularités à l'aune duquel la preuve de la tricherie peut être examinée.

3.2.2 Bases théoriques des filtres comportementaux

Les filtres doivent reposer sur une solide théorie économique et sur la capacité de celle-ci à établir une distinction entre concurrence et collusion. Lors de la conception d'un filtre, il importe donc de comprendre le fonctionnement de la concurrence et de la collusion et de déterminer si un filtre particulier permettrait de les distinguer l'une de l'autre. Un programme de filtrage dépourvu de base théorique solide ne pourrait sans doute pas être appliqué car sa crédibilité serait fragilisée.

Encadré 3 – L'importance d'une base empirique pour les filtres

Les filtres gagnent à être appuyés sur une base théorique solide et sur l'application de tests empiriques. Les études théoriques commencent en général par décrire la théorie économique qui sous-tend la conception des filtres, et passent ensuite à leur mise à l'essai en situation réelle⁷⁸. Certains auteurs donnent une base empirique au filtre qu'ils proposent d'utiliser en illustrant son application à l'aide de données concernant des marchés ayant été affectés par des ententes sanctionnées, par exemple, par une décision formelle d'une autorité de la concurrence ou d'un tribunal⁷⁹. Dans de nombreux articles, le filtre proposé est ensuite appliqué à un autre marché ou à un sous-ensemble différent d'entreprises afin de vérifier si le marché considéré doit être examiné de plus près sous l'angle de la concurrence⁸⁰.

C'est l'approche qu'adoptent, par exemple, Abrantes-Metz et d'autres chercheurs lorsqu'ils proposent l'utilisation d'un « filtre d'écart de prix » pour détecter de possibles stratégies de collusion sur un marché donné⁸¹. En bref, ces auteurs s'appuient sur la théorie selon laquelle en cas de collusion, les coûts associés à la coordination des prix et à la nécessité de résoudre des problèmes d'agence conduisent sans doute à un écart de prix plus faible. Citant d'abord des études théoriques et empiriques allant dans ce sens, ils mettent ensuite le filtre à l'essai à partir de données concernant une affaire connue de soumissions concertées dans le cadre de l'approvisionnement d'installations militaires en perche congelée. Le résultat principal du test est que les prix sont demeurés beaucoup plus stables pendant la période de collusion que pendant celles qui l'ont précédée et suivie⁸². Les auteurs appliquent enfin leur filtre d'écart de prix au marché de détail de l'essence de Louisville, au Kentucky. Ils estiment qu'il n'y a pas eu de comportement de collusion sur ce marché qui n'a fait l'objet d'aucune enquête des autorités de la concurrence⁸³.

⁷⁸ Par exemple, Friederiszick et Maier-Rigaud (2008) ; Lorenz (2008). On trouvera des synthèses et des comptes rendus de textes proposant des filtres particuliers dans les articles consacrés à l'utilisation des filtres de marché en général. Voir par exemple Abrantes-Metz et Bajari (2012) et Harrington (2008).

⁷⁹ Par exemple, Lorenz (2008) et Conley et Decarolis (2013).

⁸⁰ Par exemple, Conley et Decarolis (2013).

⁸¹ Abrantes-Metz, Froeb, Geweke et Taylor (2006). Pour un examen détaillé de cette question, voir annexe 1, section 1 ci-après.

⁸² Abrantes-Metz, Froeb, Geweke et Taylor (2006).

⁸³ Des démarches similaires sont adoptées dans de nombreuses études afin de donner une assise théorique et empirique aux différents filtres de marché. Dans le même temps, cette façon de faire apporte un éclairage sur d'autres questions importantes liées à l'utilisation de filtres par les autorités de la concurrence, notamment en ce qui concerne la capacité de réutiliser un filtre donné sur plusieurs marchés différents ; les ressources humaines et les données nécessaires pour la mise en œuvre du filtre ; et les coûts et difficultés liés à la dissimulation d'une entente. Voir par exemple les travaux de Lorenz (2008) et de Conley et

On trouvera dans les paragraphes qui suivent un examen de certaines des bases théoriques qui sous-tendent l'élaboration des filtres comportementaux décrits dans les textes économiques.

Green et Porter avancent que de fortes chutes de prix intervenant de manière périodique peuvent indiquer une collusion⁸⁴. S'écartant de l'hypothèse selon laquelle de fortes chutes de prix traduisent l'instabilité intrinsèque des ententes, ces auteurs conçoivent un modèle dans lequel les chutes périodiques des prix et des bénéfices des entreprises membres d'une entente indiquent peut-être que celles-ci utilisent les guerres des prix comme dispositifs d'autosurveillance et d'auto-application. Ils présument que la demande est incertaine et que les entreprises passent des accords de collusion selon que le prix de marché est supérieur ou non à un prix « déclencheur » convenu. L'autre hypothèse de collusion est que les niveaux de production suivent un processus de changement déclenché par les chutes du prix de marché. Green et Porter appliquent leur théorie au secteur du transport ferroviaire de fret dans les années 1880 et estiment que ce secteur présentait le type de collusion qu'ils ont modélisée.

Rotemberg et Saloner examinent les stratégies tarifaires adoptées par des entreprises ayant passé un accord de collusion tacite lorsqu'elles sont confrontées à des fluctuations de la demande⁸⁵. Ils estiment qu'une menace crédible de punition future apporte la discipline qui facilite la collusion. Cependant, la tentation d'une déviation unilatérale au sein de l'entente est souvent plus forte lorsque la demande est élevée. Pour atténuer cette tentation en période de demande élevée, il est possible que les entreprises qui participent à une entente se comportent de manière plus compétitive. Ce comportement donne lieu à des fluctuations des prix et des marges contracycliques, c'est-à-dire que le prix et la marge de collusion sont plus faibles lorsque la demande est élevée et plus élevés lorsque la demande est faible. Rotemberg et Saloner observent que la situation du secteur ferroviaire dans les années 1880 et celle du secteur automobile dans les années 1950 illustrent leur théorie.

Selon Athey, Bagwell, et Sanchirico, la rigidité des prix en présence de chocs sur les coûts peut indiquer la présence de collusion⁸⁶. Dans leur étude, ils avancent que la rigidité des prix peut dissimuler un comportement de collusion dans un secteur qui répond à certaines hypothèses structurelles. Les auteurs analysent un jeu de Bertrand répété à horizon infini dans lequel chaque entreprise connaît son propre niveau de coût unitaire pour chaque période ; où il existe un continuum de coûts possibles ; et où les niveaux de coûts sont répartis de manière indépendante et identique entre les entreprises. Ils montrent que si les entreprises sont assez patientes et que la répartition de leurs coûts est log-concave, la collusion symétrique optimale à l'équilibre se caractérise à la fois par la rigidité des prix et l'absence de guerres des prix. Ils font également ressortir qu'en situation de concurrence, l'évolution des prix suit plus étroitement celle des coûts. Leur étude semble indiquer qu'il est probable que les ententes réduisent les écarts de prix : par exemple, des ajustements fréquents des conditions d'entente sont onéreux et compliqueraient la détection du non-respect. Par conséquent, le passage d'une situation de concurrence à une situation d'entente se caractérise par une diminution de l'écart de prix (et vice versa).

Marshall, Marx et Raiff analysent les annonces de prix dans le secteur des vitamines afin de détecter la collusion intervenue dans ce secteur après 1985⁸⁷. Ils constatent que les annonces de prix faites pendant la durée de l'entente, de même que les délais écoulés avant que les prix ne deviennent effectifs, étaient

Decarolis (2013). Différents travaux sur l'affaire du LIBOR actuellement en cours et examinée ci-après possèdent la même structure générale (voir annexe 2, section 3.3.)

⁸⁴ Green et Porter (1984).

⁸⁵ Rotemberg et Saloner (1986).

⁸⁶ Athey, Bagwell et Sanchirico (2004).

⁸⁷ Marshall, Marx et Raiff (2008).

fondamentalement différentes de celles qui étaient faites lorsque la probabilité de collusion explicite était moindre. Les estimations de logit montrent qu'après 1985, la probabilité d'une annonce de prix était largement induite par l'intervalle entre les annonces plutôt que par des facteurs de coûts ou de demande, ce qui semble indiquer que les annonces de prix postérieures à 1985 découlaient des réunions des membres de l'entente. Les auteurs modélisent les annonces de prix publics dans un secteur présentant une homogénéité de produits et de contraintes de capacités sous forme de jeu sur plusieurs périodes et constatent que comparativement à la période antérieure à 1985, les annonces faites au cours de la période de collusion intervenaient bien avant les dates de prise d'effet. Ils mettent aussi en évidence le fait que pendant la période de collusion, le moment choisi pour annoncer les prix concordait avec les réunions organisées régulièrement par les entreprises membres de l'entente. Par conséquent, les implications empiriques du modèle corroborent largement l'absence de collusion explicite dans le secteur des vitamines avant 1985, mais aussi la présence de collusion explicite par la suite.

Harrington et Chen examinent un modèle dynamique d'oligopole avec coûts stochastiques dans lequel une entreprise membre d'une entente est détectée avec un certain degré de probabilité⁸⁸. Ils décrivent des systèmes de tarification relevant de la collusion mis en place lorsque les acheteurs risquent de détecter la présence d'une entente. Les acheteurs sont censés devenir soupçonneux lorsqu'ils observent des prix inhabituels. Harrington et Cheng observent que l'évolution du prix d'entente comporte deux étapes. Pendant l'étape de transition, le prix augmente et réagit assez peu aux chocs sur les coûts. Pendant la période stationnaire, les prix sont sensibles aux coûts mais nettement moins qu'en l'absence de collusion ou en situation de monopole simple. De plus, contrairement à ce que l'on observe en l'absence de collusion, les chocs sur les coûts mettent davantage de temps à se répercuter sur les prix. Les auteurs concluent qu'un faible écart de prix peut être utilisé comme marqueur de collusion.

3.2.3 *Marqueurs de collusion et ruptures structurelles : des outils pour la conception de filtres*

La conception de filtres comportementaux se déroule pour l'essentiel en deux étapes. La première étape consiste à définir des *marqueurs de collusion* qui, selon les études théoriques et empiriques, permettent de faire la part entre un comportement conforme au jeu de la concurrence et un comportement qui peut s'expliquer par la collusion. La deuxième étape porte sur la recherche, dans le processus concurrentiel, de *ruptures structurelles* (par exemple, une guerre des prix au sein de l'entente) ou de *chocs exogènes* (par exemple, la modification des coûts des facteurs de production) qui permettent d'expliquer une modification du comportement des entreprises par une collusion ou par le jeu de la concurrence.

3.2.4 *Marqueurs de collusion – observations générales*

Les filtres peuvent servir à rechercher des systèmes de collusion à l'aide d'indicateurs ou d'indices (souvent appelés marqueurs) comme les prix, les quantités et les parts de marché, ou les coûts. Pour conduire à un « diagnostic », les filtres d'entente doivent être conçus pour détecter les signes d'un comportement d'entente. Le tableau ci-dessous présente une liste des marqueurs de collusion, liés ou non aux prix, que les publications spécialisées recommandent de prendre en compte lors de la conception de filtres comportementaux.

⁸⁸

Harrington et Chen (2006).

Tableau 2 – Marqueurs de collusion pour les filtres comportementaux

Type de marqueur	Description
Prix	1 Prix de catalogue ou prix habituel plus élevé et faible variation de prix entre les clients
	2 Une série d'augmentations régulières des prix est précédée par de brusques reculs des prix.
	3 Les prix augmentent et les importations diminuent.
	4 Les prix des entreprises sont très corrélés positivement entre eux.
	5 Un degré élevé d'uniformité entre les entreprises en ce qui concerne le prix des produits et d'autres aspects, notamment les prix des services connexes
	6 Faible écart de prix
	7 Le régime des prix est fluctuant.
Quantité	8 Les parts de marché sont très stables dans le temps.
	9 La part de l'offre totale de chaque entreprise comprise dans un sous-ensemble d'entreprises est très stable dans le temps.
	10 La part de marché d'une entreprise est corrélée négativement dans le temps.

Source : Hüschelrath (2010), d'après Harrington (2006).

Avant de passer en revue les marqueurs de collusion souvent utilisés dans les filtres d'ententes comportementaux, soulignons que de nombreux marqueurs (parallélisme des prix, stabilité des parts de marché, faible écart de prix, etc.) peuvent être présents même en l'absence de collusion. Les marqueurs (et les filtres) ont pour objet d'attirer l'attention sur de possibles situations de collusion mais il appartient à l'autorité de la concurrence d'enquêter pour déterminer s'il y a bel et bien collusion et de réunir des preuves concrètes à cet égard⁸⁹.

3.2.4.1 Marqueurs fondés sur l'analyse des prix

Une entente vise toujours à augmenter les prix au-delà du niveau concurrentiel. L'analyse des prix peut donc apporter des indications très utiles sur l'existence éventuelle d'une entente. Diverses caractéristiques de prix s'expliquent par la formation ou le démantèlement d'une entente et non par le jeu normal de la concurrence. Par exemple, dans de nombreux cas, une entente s'est formée après un recul assez marqué des prix, que les membres de l'entente ont ensuite relevés régulièrement sur une période de plusieurs années. Si la demande a un caractère non cyclique, cette chute brutale des prix, suivie de leur augmentation régulière, peut s'expliquer par la collusion⁹⁰. Des fluctuations brusques des prix peuvent également être liées à des « modifications du régime des prix » intervenant au début ou à la fin d'une punition au sein d'une entente⁹¹ ou à des guerres des prix visant à persuader ou dissuader un nouvel entrant de participer à l'entente. Un cycle de recul des prix suivi d'augmentations des prix peut faire soupçonner que le marché a été affecté par des pratiques de collusion. Le fait de disposer d'informations sur les événements qui ont pu entraîner des ruptures structurelles peut alors se révéler utile pour centrer l'analyse sur le cadre chronologique pertinent et pour interpréter les caractéristiques observables.

⁸⁹ Rey (2006) en convient : « dans l'ensemble, il faudrait sans doute pousser les recherches dans ce domaine, mais il paraît difficile pour l'instant de s'en remettre à cette seule approche pour détecter les ententes ».

⁹⁰ Harrington (2006).

⁹¹ Harrington (2006).

Un premier groupe de marqueurs de prix permet d'analyser les fluctuations des prix de chaque entreprise :

- Une entreprise pratique un prix élevé, ce qui, dans certaines situations, peut être l'indice d'un comportement de coordination, en particulier en présence d'autres pratiques commerciales que l'on ne s'attend pas à observer dans un cadre plus concurrentiel : adoption d'un barème (au lieu d'une variété de prix négociés individuellement) ; suppression des remises ; et relèvement simultané des prix par plusieurs fournisseurs. Toutes ces pratiques accroissent l'uniformité des prix, ce qui s'explique peut-être par le besoin de simplifier le fonctionnement et le contrôle de l'entente conclue.
- Un écart de prix marqué entre différentes régions géographiques signifie peut-être que le marché qui pratique un prix élevé est affecté par la collusion⁹².
- Sauf sur les marchés cycliques, le fait que certaines entreprises procèdent à des augmentations fortes et régulières des prix après un recul marqué des prix peut s'expliquer par la formation d'une entente en réaction à un événement qui a causé une importante diminution des prix (par exemple, un fléchissement de la demande ou des capacités excédentaires). Ces fortes fluctuations des prix peuvent servir à détecter de possibles ententes en cours de formation.
- L'augmentation des prix d'une entreprise et la diminution des importations de ses rivaux peuvent être les indices d'une entente de répartition de marché. Dans ces ententes, les concurrents réduisent leurs ventes à l'extérieur de leur marché « local » et relèvent les prix sur ce marché.

D'autres marqueurs de prix sont axés sur l'analyse des prix facturés par différents concurrents :

- Le parallélisme des prix, par exemple, est parfois un indice de collusion, en particulier si les fluctuations des prix sont simultanées et identiques⁹³. Tel est le cas, par exemple, des soumissions identiques présentées dans le cadre d'un appel d'offres avec soumission sous pli cacheté⁹⁴. C'est pourquoi de nombreux filtres empiriques sont conçus pour détecter si les prix pratiqués par des entreprises rivales sont fortement et positivement corrélés. Des prix identiques ou fortement corrélés vont parfois de pair avec une grande uniformité des autres conditions, par exemple celles qui s'appliquent aux services connexes ou aux services après-vente.
- Certaines publications spécialisées mettent en évidence une relation entre l'écart de prix et l'exercice de la concurrence, au sens où l'on observe un faible écart de prix en cas de collusion⁹⁵. Dans un cadre concurrentiel, les prix sont sujets à des fluctuations dans le temps, mais ils sont plus stables en cas de collusion. La stabilité inhabituelle des prix est une des caractéristiques d'un secteur affecté par une entente. En effet, le faible écart de prix fait que les entreprises peuvent plus facilement s'entendre pour pratiquer des prix uniformes, ce qui simplifie par ailleurs le contrôle du comportement de chacune. Dès lors, il y a lieu de penser que les entreprises membres d'une entente réduisent les variations de prix entre leurs différents clients. Cela tend à démontrer que l'examen de la variabilité des prix pratiqués par les entreprises peut apporter des indications utiles pour établir si les prix ont été fixés dans le respect des règles de concurrence ou s'ils relèvent de la collusion.

⁹² ABA, 2010. Cette approche est mise en œuvre, par exemple, par l'autorité néerlandaise de la concurrence (NMa) dans le cadre de son indice de concurrence (voir annexe 2, section 1.1).

⁹³ Rey (2006).

⁹⁴ Voir section 3.3.1 ci-après.

⁹⁵ Voir annexe 1, section 1 ci-après.

- L'examen de la variabilité des prix peut également se révéler utile pour détecter les situations dans lesquelles l'entente est passée de la phase de mise en œuvre à une phase de punition (habituellement associée à une baisse des prix moyens) puis revient à la phase de mise en œuvre (avec augmentation des prix moyens). Il est possible de concevoir un filtre de comportement pour détecter les situations dans lesquelles les prix sont sujets à des modification de régime et attirer l'attention sur les fluctuations des prix qui pourraient correspondre aux différentes phases de la durée de vie d'une entente.

Encadré 4 – Les marqueurs de prix recensés dans le document d'information sur les pratiques anticoncurrentielles *Antitrust Primer* publié par le ministère de la Justice des États-Unis

Dans le cadre des efforts engagés pour encourager les citoyens à signaler leurs soupçons concernant de possibles violations du droit de la concurrence, les États-Unis ont publié un document d'introduction aux pratiques anticoncurrentielles⁹⁶. Cette publication fournit au grand public une brève description de certains comportements ou événements qui peuvent constituer des signes de collusion. Cinq régimes de tarification sont de possibles indices de collusion explicite :

1. Les prix sont stables pendant de longues périodes.
2. Les prix ont été modifiés.
3. Les hausses des prix ne semblent pas découler d'une augmentation des coûts.
4. Les remises sont supprimées, en particulier sur un marché où elles étaient traditionnellement consenties.
5. Les vendeurs facturent des prix plus élevés aux clients locaux qu'aux clients éloignés. Cela peut indiquer qu'il y a eu un accord de fixation des prix au niveau local.

3.2.4.2 Les marqueurs fondés sur des facteurs autres que le prix

Le prix n'est pas la seule variable susceptible d'être affectée par la collusion. Les ententes peuvent par exemple avoir une incidence sur les quantités produites par leurs membres lorsque ceux-ci ont pour objectif la stabilité des parts de marché dans le temps. De même, elles peuvent avoir pour effet de limiter la production de leurs membres et une certaine forme de contrôle s'exerce parfois sur les capacités de production de chacun. Enfin, une entente peut avoir pour principal objectif d'accroître les bénéfices globaux de ses membres grâce à un taux de rentabilité supérieur à celui qui serait obtenu en situation de concurrence normale. Les filtres comportementaux peuvent s'appuyer sur ces variables et sur d'autres variables que les prix pour détecter et signaler les situations pouvant indiquer une absence de concurrence.

Un premier groupe de marqueurs non liés aux prix permet d'analyser des mesures de *quantité* :

- Différents dispositifs d'entente conduisent à la stabilisation des parts de marché⁹⁷. Par conséquent, des parts de marché très stables dans le temps peuvent permettre de détecter une entente. Par exemple, les accords de répartition de clients ou de régions géographiques réduisent en général la variation des ventes des membres de l'entente⁹⁸. Les membres de certaines ententes

⁹⁶ États-Unis, *Department of Justice, Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For* (<http://www.justice.gov/atr/public/guidelines/211578.pdf>).

⁹⁷ On trouve une brève description de modèle théorique à l'appui de ce constat dans Harrington (2008) et Harrington (2006).

⁹⁸ ABA (2010).

acceptent explicitement que l'entente soit régie par une règle de maintien des parts de marché antérieures (*status quo ante*), ce qui exclut toute évolution des parts de marché dans le temps⁹⁹.

- La corrélation négative de la part de marché d'une entreprise dans le temps mène parfois à un constat similaire. Sur un marché concurrentiel, on s'attend à ce que les parts de marché des entreprises évoluent dans le temps, parallèlement à leurs coûts. La corrélation négative entre les parts de marché d'une entreprise dans le temps, c'est-à-dire le fait que la part de marché soit étonnamment élevée pendant une certaine période puis soit étonnamment faible pendant la période suivante, peut être un signe de collusion. Dans le cadre des ententes qui prévoient que les entreprises se dédommageront entre elles, par exemple au titre des ventes réalisées dans certaines régions ou auprès de clients qui avaient préalablement été attribués à une autre entreprise, on peut observer une corrélation négative entre les parts de marché détenues par une entreprise dans le temps¹⁰⁰. Les membres de certaines ententes mises au jour avaient convenu de modifier dans le temps les parts de marché qu'ils s'étaient réparties¹⁰¹.

Les autres marqueurs non fondés sur les prix reposent sur l'analyse des *capacités de production*¹⁰² :

- Certaines ententes peuvent induire des restrictions à la production en réduisant les capacités de production réelles de leurs membres ou en limitant l'expansion de leur capacité. Lorsque l'on dispose de données chronologiques sur les capacités, l'examen des décisions prises par les entreprises en matière d'expansion des capacités ou d'investissement peut attirer l'attention sur des périodes pendant lesquelles on peut présumer que les règles de concurrence ont prévalu¹⁰³.
- De même, l'examen du taux d'utilisation des capacités de production peut indiquer si l'utilisation de la capacité a été affectée par l'existence d'une entente. À long terme, les équilibres d'entente se caractérisent en général par des capacités excédentaires¹⁰⁴.

Les marqueurs peuvent également se rapporter aux *bénéfices et aux taux de rendement*¹⁰⁵. Cette approche se fonde sur la comparaison entre les résultats réels d'un secteur et les résultats auxquels on pourrait normalement s'attendre dans un secteur comparable en situation de concurrence « normale ». Voici une description de certains marqueurs fondés sur des résultats supérieurs à ce qu'ils seraient en situation de concurrence normale :

- Les ententes réussies peuvent entraîner un taux de rendement anormalement élevé pendant leur phase de formation et pendant leur durée de vie. Le taux de rendement des entreprises peut être utilisé comme filtre de collusion encore que pour beaucoup, une marge prix-coût élevée (c'est-à-dire un taux de rendement anormalement élevé) n'est pas forcément un signe de collusion mais simplement d'un pouvoir de marché¹⁰⁶.

⁹⁹ Harrington (2008).

¹⁰⁰ ABA (2010) ; Harrington (2006).

¹⁰¹ Harrington (2008).

¹⁰² von Blanckenburg et Geist (2010).

¹⁰³ ABA (2010).

¹⁰⁴ Benoit et Krishna (1985) ; Davidson et Deneckere (1990).

¹⁰⁵ von Blanckenburg et Geist (2010).

¹⁰⁶ Voir à ce sujet l'étude de Harrington (2008).

- Un autre marqueur de collusion peut être la corrélation entre les écarts de taux de rendement et l'évolution du taux de croissance des capacités. Sur un marché concurrentiel, il est normal d'attendre une corrélation positive entre un taux de rendement anormalement élevé et la croissance des capacités. Un taux de rendement anormalement élevé laisse prévoir une augmentation du taux de croissance des capacités, et vice versa. En période d'entente, lorsque les entreprises se mettent d'accord sur leurs investissements, on peut s'attendre que ces deux facteurs évoluent de manière indépendante. L'augmentation des capacités pendant une période d'entente ne devrait survenir que sur des marchés en croissance sur lesquels prédominent des chocs de demande positifs.

Les marqueurs de collusion peuvent aussi être associés à l'analyse des *niveaux de coûts et d'efficience des entreprises*¹⁰⁷ :

- Le filtre peut détecter une possible collusion lorsque les niveaux de prix ne sont pas compatibles avec les niveaux de coûts ou ne réagissent pas aux chocs sur les coûts. Les données empiriques montrent que sur les marchés concurrentiels, le prix de marché est davantage fonction des évolutions des coûts¹⁰⁸.
- L'absence de pression concurrentielle qui caractérise les situations d'entente affecte négativement la productivité. La comparaison des niveaux de coûts et d'efficience peut indiquer si les coûts et l'efficience des entreprises sont affectés par la participation à une entente¹⁰⁹.

¹⁰⁷ Von Blanckenburg et Geist (2010).

¹⁰⁸ Abrantes-Metz, Froeb, Geweke et Taylor (2006). S'agissant en particulier de l'analyse du rapport prix-coût pendant la période de concurrence et la période d'entente, voir le graphique 1a de l'annexe 1, qui est tiré de l'article illustrant les fluctuations des prix et des coûts des filets de perche congelés pendant l'entente, pendant la période de transition entre l'entente et un cadre plus concurrentiel et pendant la période de concurrence. Ce graphique montre que les prix ont suivi les fluctuations des coûts plus étroitement pendant la période de concurrence que pendant la période d'entente et que les marges brutes étaient plus élevées pendant l'entente.

¹⁰⁹ Les études empiriques constatent une corrélation positive entre la concurrence et l'efficience des entreprises. Primeaux (1977) estime l'effet de la concurrence sur les coûts moyens de production d'entreprises d'électricité détenues par des municipalités confrontées à la concurrence et les coûts moyens de production d'autres entreprises du même type disposant d'un pouvoir de monopole. Cet auteur constate que les coûts moyens assumés par les entreprises exploitées par des municipalités sur des marchés duopolistiques étaient inférieurs de 10.75 % aux coûts moyens assumés par les entreprises qui n'étaient pas confrontées à la concurrence. Carlsson (1972) utilise un indice de production effective (efficience) dans une étude portant sur 26 secteurs d'activité suédois, en 1968. Avec cet indice, il effectue une régression par rapport à plusieurs mesures de la concurrence sur les marchés de produits. Sa conclusion générale est que l'efficience est positivement corrélée au degré de concurrence étrangère à laquelle est confronté le secteur industriel suédois. Bergsman (1974) arrive à une conclusion similaire à l'issue d'une étude sur six pays. Pour un examen plus détaillé des éléments concrets associant la concurrence et la politique de la concurrence aux résultats macroéconomiques comme la croissance, voir le document du Secrétariat intitulé « Factsheet on Competition and Growth » [DAF/COMP/WP2(2013)11] à l'adresse <http://www.oecd.org/daf/competition/productivity-growth-competition.htm>.

Encadré 5 – Mise en garde concernant l'utilisation des mesures de la rentabilité et des coûts

De nombreux auteurs engagent les autorités chargées de l'application du droit de la concurrence à faire preuve de circonspection lorsqu'elles mènent des analyses de rentabilité et en interprètent les résultats¹¹⁰. Leurs publications soulignent les deux principales limites de l'analyse de rentabilité. Premièrement, au plan théorique, son objet n'est pas bien défini, c'est-à-dire qu'on ne sait pas en quoi consisteraient une mesure pertinente de la rentabilité ni le repère de concurrence le mieux approprié. Deuxièmement, l'analyse de rentabilité soulève divers problèmes de mesure et d'interprétation :

- Problèmes de mesure : les données comptables sont normalement la principale source d'informations utilisée pour la conduite d'une analyse de rentabilité. Cependant, les entreprises présentent rarement ces données d'une manière qui permet leur utilisation facile et rapide dans le cadre d'une analyse économique réalisée pour les besoins de l'application de la politique de la concurrence. À cela s'ajoute le fait que les principes comptables sont loin d'être uniformes selon les entreprises et les pays.
- Problèmes d'interprétation : même lorsqu'il est possible de mesurer les bénéfices, il peut être difficile d'interpréter les chiffres de rentabilité. Par exemple, quand peut-on estimer que les bénéfices sont trop importants ou trop faibles et quelle période faut-il prendre en compte ? En quoi doit consister une mesure appropriée des coûts ? Doit-elle porter sur les coûts marginaux ou sur les coûts marginaux à long terme ? Par ailleurs, des bénéfices importants découlent-ils d'un pouvoir de marché ou d'une efficience supérieure¹¹¹ ?

Ajoutons que l'utilisation des bénéfices élevés pour mesurer un possible comportement anticoncurrentiel enverrait des mauvais signaux au marché et aurait un effet paralysant sur la concurrence. C'est pourquoi les autorités de la concurrence ont rarement recours aux mesures de la rentabilité dans le cadre des affaires liées à la mise en œuvre du droit de la concurrence, en dépit du fait que ces mesures pourraient avoir (en théorie du moins) un vaste éventail d'applications lors des différentes étapes des enquêtes sur les ententes, les abus de position dominante ou les fusions. Ces applications peuvent concerner la définition du marché en cause et la détermination d'un pouvoir de marché, certaines affaires particulières d'abus de position dominante (par exemple, tarification excessive¹¹², prix d'éviction et subventions croisées, et compression des marges), ainsi que l'évaluation des effets coordonnés et des arguments de l'entreprise défaillante dans les affaires de fusion.

Les limites inhérentes aux mesures de la rentabilité soulèvent des préoccupations particulièrement marquées lorsque les autorités de la concurrence ont recours à ces mesures pour prouver l'existence d'une violation des règles de concurrence ou d'une fusion anticoncurrentielle. L'utilisation des mesures de la rentabilité dans les dispositifs de filtrage est en revanche moins inquiétante puisque les filtres visent uniquement à attirer l'attention sur des situations qui devraient faire l'objet d'une enquête approfondie de l'autorité de la concurrence. Cela dit, la prudence s'impose lorsque l'on utilise des mesures de la rentabilité dans le cadre des dispositifs de filtrage. Rey, par exemple, attire l'attention sur les difficultés que posent les filtres fondés sur ce type de marqueurs et note que l'utilisation de ces filtres exige des *« données détaillées et une analyse des conditions des coûts et de la demande (non seulement celles du moment mais aussi celles qui caractériseraient un cadre concurrentiel). Cette analyse est particulièrement difficile à réaliser dans les secteurs concentrés, qui sont de toute façon souvent soumis à une « concurrence imparfaite » (c'est-à-dire qu'une concurrence « normale » purement statique et non coopérative produirait tout de même des marges prix-coût et des bénéfices non négligeables.) De manière plus générale, ce type d'analyse en profondeur exige une connaissance et une expérience solides du secteur et est plus naturellement associée à la surveillance exercée par l'autorité de réglementation qu'à celle assurée par l'autorité de la concurrence*¹¹³ ».

¹¹⁰ Oxera (2003) et études citées dans ce document.

¹¹¹ Voir l'étude effectuée par Harrington (2008).

¹¹² OCDE (2011).

¹¹³ Rey (2006).

Il n'entre pas dans notre propos d'examiner la complexité des mesures de la rentabilité dans le cadre de la politique de la concurrence et de la mise en œuvre des règles de concurrence. Soulignons toutefois qu'il ne serait pas judicieux que les autorités de la concurrence s'en remettent *exclusivement* à la constatation de l'existence de prix élevés et de superbénéfices pour détecter les ententes. On pourrait toutefois considérer que l'analyse de la rentabilité fait partie des nombreux indicateurs et techniques économiques complémentaires que les autorités peuvent utiliser dans une analyse de la concurrence. C'est pour cette raison que nous rangeons ici les mesures de la rentabilité ainsi que des prix par rapport aux coûts parmi les possibles marqueurs de collusion. Si les données disponibles indiquent, par exemple, que les taux de rendement ont sensiblement évolué dans le temps ou que pendant une certaine période, les prix se sont sensiblement éloignés d'une mesure donnée du coût, il est possible qu'une entente soit à l'œuvre. Il faut toutefois mener une enquête poussée pour confirmer l'existence de cette entente.

3.2.4.3 Ruptures structurelles et points de référence appropriés pour les filtres

La définition du ou des marqueurs appropriés pour le filtrage des marchés n'est que la première étape de la conception de filtres efficaces. Les marqueurs représentent les éléments de base de l'analyse mais pour attirer l'attention sur de possibles accords de collusion, il faut les recueillir pendant une certaine période et les comparer avec des points de référence appropriés. L'analyse comparative est indispensable pour que le filtre permette de faire la part entre collusion et concurrence. La découverte d'événements qui ont conduit à une nette modification (ou « rupture structurelle ») du fonctionnement des marchés peut aussi servir à modéliser et prédire la performance des marchés ou le comportement des entreprises. Ces événements s'expliquent parfois par le cycle de vie des ententes. Celles-ci sont formées ou démantelées et le comportement des entreprises évolue au fil d'événements divers comme les fusions, les sorties et les entrées d'entreprises, ou encore les informations communiquées par les médias¹¹⁴. L'idée centrale sur laquelle repose le repérage des ruptures structurelles est la réalisation d'une évaluation contradictoire, qui consiste à réfléchir à ce que seraient les résultats des marchés en l'absence de collusion¹¹⁵. Si les marqueurs sont axés sur ce qui est pertinent pour faire la part entre concurrence et collusion, l'attention se porte sur la recherche de fluctuations et de ruptures dans les résultats du marché, et non pas forcément sur les résultats eux-mêmes (par exemple, prix élevés et prix bas).

Les points de référence peuvent être de nature différente et être établis à partir d'observations fondées sur un ou plusieurs des facteurs suivants :

- Périodes différentes – De nombreux filtres comparent le comportement des entreprises et les résultats du marché entre différentes périodes¹¹⁶. Un modèle de régression courant utilisé pour analyser des marchés, en cas de collusion présumée, est une régression « avant et après » qui consiste à comparer les prix dans le temps. Les données concernant un même marché, mais pour des périodes différentes, peuvent servir de point de référence à condition qu'elles couvrent à la

¹¹⁴ Voir Friederiszick Maier-Rigaud (2008) pour un examen détaillé des types d'événements déterminants décelables pendant la durée de vie de l'entente depuis sa phase de formation et sa mise en œuvre jusqu'à sa cessation.

¹¹⁵ Selon Friederiszick et Maier-Rigaud, il faut, pour détecter ces événements déterminants, se poser « deux questions fondées sur les données réunies lors de l'examen du secteur concerné : « 1) Est-il possible de repérer les chocs exogènes qui entraînent des réactions différentes selon que l'on a affaire à une situation d'entente ou de concurrence ? et (2) Est-il possible d'observer des ruptures structurelles qui ne s'expliquent pas dans un cadre concurrentiel ? » (Friederiszick et Maier-Rigaud, 2008).

¹¹⁶ Par exemple, comme le montrent Abrantes-Metz, Froeb, Geweke et Taylor (2006), l'écart entre les prix des filets de perche congelés a été sensiblement plus important et les prix, plus bas, pendant les périodes qui ont précédé et suivi l'entente.

fois la période de collusion et la période de concurrence¹¹⁷. La similarité des prix avant et après la période de collusion présumée peut être un indice de collusion. Cependant, la fiabilité de l'analyse exige que les économistes vérifient si les facteurs de demande et d'offre ont évolué dans le temps, de manière à ce que le modèle présente une comparaison valable des prix malgré l'évolution des conditions du marché¹¹⁸.

- Marchés de produits différents – Une série de prix et ses propriétés peuvent être comparées à celles d'autres produits d'un secteur similaire sur lequel ne pèse aucun soupçon d'entente. Ces « étalons de mesure » permettent de comparer, pendant une même période, les prix pratiqués sur des marchés affectés par des ententes et des marchés qui ne le sont pas. Là encore, les modèles doivent vérifier s'il existe des différences entre les conditions du marché examiné et du marché pris comme point de référence. Il est également possible de comparer simultanément une série de prix d'un secteur particulier avec celles de plusieurs autres secteurs, en presumant qu'il est peu probable que l'ensemble des secteurs utilisés comme points de repère soient affectés par des ententes.
- Marchés géographiques différents – dans certains cas, il est possible de repérer des marchés qui sont comparables avec le marché qui fait l'objet du filtrage, c'est-à-dire des marchés distincts mais possédant un processus dynamique général similaire. La différence entre le comportement des entreprises ou des résultats du marché obtenus sur le marché auquel le filtre est appliqué et ceux qui sont observés sur un marché où l'on sait que la concurrence s'exerce peut être un indice de collusion¹¹⁹.

Une autre approche est possible lorsqu'il n'existe pas de données sur la période de collusion et la période de concurrence ou lorsqu'un observateur extérieur ne parvient pas à repérer de rupture structurelle pour les besoins de l'analyse comparative. Cette approche consiste à modéliser le comportement des entreprises ou les résultats du marché sur un marché particulier en se fondant sur des théories de l'équilibre concurrentiel ou de l'équilibre d'entente sur ce marché. Les observations concernant ce marché sont comparées avec les prédictions du modèle et en cas de divergences, un examen approfondi est peut-être justifié¹²⁰. Par exemple, dans le cadre des marchés publics où l'éloignement des consommateurs par rapport aux entreprises est fortement corrélé aux coûts, on peut raisonnablement prédire que dans des circonstances normales, les entreprises très éloignées d'un chantier s'abstiendraient de soumissionner. Par conséquent, il y a peut-être lieu d'avoir des soupçons si le comportement des entreprises éloignées va à l'encontre de cette prédiction. Il se peut que ces entreprises présentent des « offres complémentaires » pour donner l'impression que la concurrence s'exerce alors qu'en réalité, la soumission gagnante désignée est artificiellement élevée.

¹¹⁷ Par exemple, Friederiszick et Maier-Rigaud (2008) ; Harrington, (2008). Pour la mise en œuvre pratique, voir par exemple Abrantes-Metz et Metz (2012). Bolotova, Connor et Miller (2008) soulignent également l'importance de l'information sur « la date à laquelle les conspirations ont commencé et celle à laquelle elles ont pris fin ». Il importe toutefois de noter qu'il est parfois difficile d'observer des modifications distinctes à la suite de la formation ou du démantèlement d'une entente. Par exemple, les membres d'une entente qui craignent d'être découverts peuvent convenir de dissimuler la rupture structurelle en augmentant leurs prix progressivement jusqu'à ce que ceux-ci atteignent un niveau stable, ou même en les augmentant progressivement pour ensuite les laisser évoluer. Voir Harrington (2004).

¹¹⁸ ABA (2010).

¹¹⁹ Par exemple, les marchandises lourdes qui sont rarement transportées sur de longues distances, comme le béton prêt à l'emploi, peuvent être soumises à ce type d'analyse (Oxera (2013)).

¹²⁰ Voir par exemple les travaux de Porter et Zona (1999), examinés plus en détails à l'annexe 1, section 2. Notons toutefois que ces auteurs fondent leurs prédictions et leur analyse du cartel du lait dans l'Ohio sur une base théorique mais aussi sur des données provenant de groupes témoins.

3.3 *Filtres empiriques pour la détection des soumissions concertées*

La détection des soumissions concertées a été un terrain fécond pour l'élaboration des filtres comportementaux. L'abondance des données disponibles sur les appels d'offres publics a permis aux économistes de mettre au point plusieurs filtres et fourni l'occasion de les soumettre à des tests empiriques. Le fait que les affaires de collusion lors des adjudications représentent une part importante des mesures d'application du droit de la concurrence dans de nombreux pays a également facilité la définition des marqueurs de collusion utilisés pour concevoir des filtres.

3.3.1 *Marqueurs de soumissions concertées*

Les filtres utilisés pour la détection des soumissions concertées sont fondés sur des marqueurs spécifiques définis par les autorités de la concurrence et les chercheurs au fil des ans. Ces marqueurs souvent présents dans les soumissions concertées sont liés à des variables différentes comme l'observation d'événements improbables dans le processus de soumission ou l'analyse statistique du comportement des différents soumissionnaires lorsqu'ils se font concurrence dans le cadre d'un appel d'offres. En général, les filtres de soumissions concertées reposent sur deux intuitions :

- Premièrement, dans un processus d'appel d'offres, les soumissions doivent être présentées séparément. Si une entente est à l'œuvre, les soumissions contiendront des signes de coordination entre les soumissionnaires. La collusion explique parfois des soumissions « trop corrélées ».
- Deuxièmement, sur un marché concurrentiel, les soumissions présentées par des concurrents distincts doivent faire état avec précision des coûts de chacun des soumissionnaires.

À partir de ces deux critères, les économistes ont élaboré de nombreux filtres pour détecter de possibles soumissions concertées. Avant d'examiner ces filtres plus en détail à l'annexe 1, voyons quels sont les principaux marqueurs souvent utilisés pour leur conception.

Parmi les événements improbables qui peuvent survenir sur un marché caractérisé par une concurrence efficace, mentionnons d'abord la présentation de soumissions identiques¹²¹. Il semble peu vraisemblable que les soumissionnaires qui participent à une entente illicite présentent une soumission identique, mais de nombreuses affaires de soumissions concertées ont été signalées aux autorités de la concurrence par des responsables des marchés publics qui avaient détecté des soumissions identiques d'entreprises prétendument concurrentes¹²².

Un autre marqueur de collusion souvent utilisé pour détecter de possibles soumissions concertées est la forte corrélation entre les soumissions, une fois vérifiées les variables coûts et pouvoir de marché¹²³. On observe souvent une corrélation sensiblement plus élevée entre les soumissions faites sur un même marché qu'entre celles qui sont faites sur un autre marché comparable. Dans ce cas, si les différences entre les corrélations ne s'expliquent pas par des différences observables entre les conditions du marché, il se peut que les entreprises se soient concertées. Plus la corrélation est forte et se maintient dans le temps, plus la concertation est probable.

¹²¹ Abrantes-Metz et Bajari (2012).

¹²² Dans une affaire bien connue de soumissions concertées intervenue dans les années 1950 aux États-Unis sur le marché des appareils électriques, sept soumissionnaires avaient présenté, dans le cadre d'une procédure d'appel d'offres sous pli cacheté, une offre identique au cent près (198 438.24 USD). La probabilité que cela se produise sans concertation préalable des soumissionnaires est à peu près nulle.

¹²³ Porter et Zona (1999) ; Porter et Zona (1993).

Un autre ensemble de marqueurs concerne le décalage entre la soumission et les coûts sous-jacents du soumissionnaire. Lorsque des entreprises concluent un accord de collusion, le rapport entre les soumissions et les coûts est rompu puisque les entreprises ont alors pour but de réaliser des bénéfices supérieurs à ceux qui caractérisent une situation de concurrence. Par exemple, si l'éloignement géographique est une variable de la concurrence sur le marché, les soumissions doivent être d'autant plus élevées que l'entreprise est éloignée, en raison des coûts de transport (toutes choses étant égales par ailleurs). De même, les soumissions présentées par une entreprise donnée doivent correspondre à l'estimation de ses coûts d'ingénierie. Toutes choses étant égales par ailleurs, lorsqu'une entreprise présente une soumission plus élevée pour un marché dont l'estimation des coûts d'ingénierie est faible que pour un marché dont l'estimation desdits coûts est élevée, il est permis de supposer qu'un système de soumissions concertées est à l'œuvre¹²⁴. L'analyse peut être réalisée en comparant les soumissions présentées par le même entrepreneur dans des conditions de marché ou d'appels d'offres similaires, ou en comparant les offres de différents soumissionnaires sur des marchés présentant des conditions de concurrence similaires¹²⁵.

Un troisième ensemble de marqueurs met en évidence les différences inattendues et notables entre l'offre retenue et les autres offres. Bien sûr, certaines différences peuvent s'expliquer par des raisons légitimes. Cependant, dans un cadre concurrentiel, il n'y a normalement pas de différences appréciables entre les concurrents. Si, une fois exclus les facteurs qui ont pu motiver le choix de l'offre retenue, cette offre et les autres offres présentent toujours des différences importantes, on peut envisager une possible collusion dans la procédure d'appel d'offres.

3.3.2 *Lignes directrices nationales et internationales en matière de détection des soumissions concertées dans les marchés publics*

Les autorités de la concurrence et les organisations internationales ont été nombreuses à s'inspirer de ces marqueurs lors de l'adoption de lignes directrices à l'intention des responsables des marchés publics afin de les aider à détecter les systèmes ou comportements inhabituels dans les soumissions. Ces lignes directrices ont été diffusées et mises en œuvre avec succès dans divers pays¹²⁶. On y trouve en général une liste de systèmes ou comportement suspects qui peuvent être des indices de manipulation des procédures d'appel d'offres. Les responsables des marchés publics y sont encouragés à signaler leurs soupçons à l'autorité de la concurrence.

¹²⁴ NERA (2010). Un test similaire peut être mis au point pour l'utilisation des capacités en se fondant sur l'idée selon laquelle toutes choses étant égales par ailleurs, on pourrait s'attendre à ce que les entreprises soumettent des offres plus agressives lorsqu'elles disposent d'une capacité de production inutilisée.

¹²⁵ Bajari et Ye (2003).

¹²⁶ Voir, par exemple, *United States Department of Justice, Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What to Look For* (<http://www.justice.gov/atr/public/guidelines/211578.pdf>) ; *Konkurrensverket – Swedish Competition Agency, Honesty Pays! How to Detect and Give Tip-Offs About Bid-Rigging Cartels in Public Procurement* (http://www.kkv.se/upload/Filer/ENG/Publications/Honesty_pays.pdf).

Encadré 6 – Lignes directrices de l'OCDE pour la lutte contre les soumissions concertées dans les marchés publics

Les Lignes directrices de l'OCDE pour la lutte contre les soumissions concertées ont été adoptées par le Comité de la concurrence en 2009 et figurent maintenant dans la Recommandation sur la lutte contre les soumissions concertées dans les marchés publics adoptée par le Conseil de l'OCDE en 2012¹²⁷. Les Lignes directrices contiennent une liste de vérification spécifique pour la détection des soumissions concertées dans la procédure de passation des marchés publics. Cette liste de vérification recommande aux responsables des marchés publics de rester vigilants sur les points suivants :

- signaux d'alerte et schémas révélateurs lorsque les entreprises soumissionnent (par exemple, le même fournisseur remporte tous les marchés) ;
- signaux d'alerte dans les documents soumis (par exemple, erreurs identiques) ;
- signaux d'alerte et schémas révélateurs concernant la fixation des prix (par exemple, le prix de l'offre gagnante et celui des autres offres sont très différents) ;
- déclarations suspectes (par exemple, références verbales ou écrites à un accord entre soumissionnaires ; et
- comportements suspects (par exemple les fournisseurs tiennent des réunions régulières).

Les Lignes directrices demandent de rechercher les signaux d'alerte, à savoir « *les schémas aberrants dans la façon dont les entreprises soumissionnent [et d'examiner] la fréquence à laquelle elles se voient attribuer ou non un marché.* » Les pratiques de sous-traitance et de co-entreprise non divulguées peuvent aussi être des indices de soumissions concertées. Certaines pratiques peuvent éveiller la suspicion, par exemple lorsque « *le même fournisseur est souvent celui dont l'offre est la plus basse ; une entreprise soumissionnant régulièrement ne soumet pas d'offre pour un marché alors qu'on s'attendrait à ce qu'elle le fasse, mais elle continue de soumissionner pour d'autres marchés ; certains fournisseurs retirent leur offre contre toute attente ; les entreprises semblent remporter le marché chacune à leur tour ; l'attributaire du marché sous-traite de façon récurrente aux entreprises dont l'offre n'a pas été retenue.* »

On peut trouver des indices révélateurs de soumissions concertées dans les documents soumis par les entreprises. Par exemple, on peut considérer comme des signaux d'alerte le fait que « *les offres de différentes entreprises comportent des mentions manuscrites ou une typographie similaires ou utilisent des formulaires ou un papier identiques ; les offres de différentes entreprises présentent les mêmes erreurs de calcul ; les enveloppes de différentes entreprises présentent des cachets postaux ou des empreintes de machines à affranchir analogues ; ou des entreprises concurrentes soumettent des offres identiques, ou bien les offres de prix des soumissionnaires augmentent par paliers réguliers.* »

Les schémas révélateurs concernant la fixation des prix doivent également être suspects : « *une hausse subite et identique des prix ou de l'éventail des prix pratiquée par les soumissionnaires ne peut être expliquée par une hausse des coûts ; l'offre d'un certain fournisseur est plus élevée pour un marché donné que son offre pour un autre marché similaire ; on peut observer une nette baisse du prix par rapport au niveau précédent des prix après soumission d'un fournisseur nouveau ou très occasionnel ; par exemple, le nouveau fournisseur peut avoir renié un accord de soumissions concertées.* »

La même règle s'applique aux déclarations suspectes verbales ou écrites, par exemple aux « *références verbales ou écrites à un accord entre soumissionnaires ; [aux] déclarations selon lesquelles les soumissionnaires justifient leurs prix en prenant en compte les « prix recommandés par la profession », les « prix courants du marché » ou les barèmes de prix du secteur ; [ou aux] déclarations révélant une soumission de complaisance, complémentaire, fictive, symbolique ou de couverture.* »

Enfin, les responsables de la passation des marchés publics doivent être alertés par les comportements suspects des soumissionnaires et doivent les porter à l'attention de l'autorité de la concurrence. Tel doit être le cas, entre autres, si « *les fournisseurs se fréquentent régulièrement ou paraissent tenir des réunions régulières ; une entreprise demande un dossier de soumission pour elle-même et pour un concurrent ; [ou si] une entreprise transmet à la fois son offre et son dossier et ceux d'un concurrent.* »

¹²⁷

La Recommandation et les Lignes directrices de l'OCDE sont consultables à l'adresse <http://www.oecd.org/daf/concurrence/fightingbidrigginginpublicprocurement.htm>.

Les lignes directrices nationales et internationales pour la détection des soumissions concertées constituent un exemple intéressant de la manière dont on peut utiliser des filtres sans être soumis à certaines limites et à certains coûts qui seront examinés dans la prochaine section. Les lignes directrices concernant la détection des soumissions concertées sont établies à l'intention des responsables de la passation des marchés publics, auxquels est confiée une partie au moins des initiatives de détection proactive. Ceux-ci doivent signaler les possibles soumissions concertées dont ils détectent les indices¹²⁸. Leur action a permis aux autorités de la concurrence de surmonter certaines des limites des filtres de marché et des difficultés associées à leur mise en œuvre : premièrement, grâce à la diffusion des lignes directrices et à la formation de nombreux responsables de la passation des marchés publics, les autorités de la concurrence peuvent être en mesure de faire procéder au filtrage de plusieurs marchés à un coût relativement faible. Deuxièmement, les responsables de la passation des marchés publics disposent parfois d'informations de meilleure qualité sur le fonctionnement du marché et les activités des entreprises que les économistes chargés de l'application des filtres au sein de l'autorité de la concurrence ; ces informations peuvent se révéler fort utiles pour la surveillance efficace du marché et pour la limitation du nombre de faux positifs et de faux négatifs. En particulier, les responsables de la passation des marchés publics s'entretiennent directement avec les soumissionnaires et sont donc en mesure d'observer leur comportement ou de repérer les déclarations qui ne figurent pas dans les documents soumis par les entreprises et qui ne sont pas directement accessibles aux autorités de la concurrence.

3.4 *Difficulté de mise en œuvre des programmes de filtrage des ententes*

Rares sont les autorités de la concurrence qui prévoient le filtrage systématique du marché dans leurs programmes de lutte contre les pratiques anticoncurrentielles¹²⁹. Bon nombre d'entre elles, notamment celles qui comptent parmi les mieux financées et les mieux implantées, hésitent à mettre en œuvre des filtres qui exigent des analyses économiques complexes de données, et s'en remettent plutôt à d'autres outils parce qu'elles estiment cette solution plus efficace et plus conforme à une utilisation efficiente des ressources¹³⁰. La réticence perçue des autorités de la concurrence à affecter les ressources nécessaires à l'élaboration, à la mise en œuvre et à l'application régulière d'un programme de filtrage proactif s'explique en partie seulement par le succès des programmes d'amnistie et de clémence. De fait, l'utilisation restreinte des filtres empiriques pour la détection est également à mettre au compte de leurs limites intrinsèques et des difficultés liées à leur adoption.

¹²⁸ Il importe toutefois de noter que si les responsables de la passation des marchés publics disposent de la formation nécessaire pour signaler les cas suspects, ils n'acquièrent pas nécessairement de compétences en matière de détection des ententes, ce qui n'est par ailleurs pas leur mission principale. Il est donc possible qu'ils ne parviennent pas à détecter les ententes ou ne soient pas suffisamment incités à signaler leurs soupçons à l'autorité de la concurrence.

¹²⁹ Sur ce point, voir à l'annexe 2 la description du système BRISA pour la détection des soumissions concertées instauré par la Corée et du programme de contrôle des prix de l'essence mis en œuvre par l'autorité américaine de la concurrence (FTC).

¹³⁰ Le RIC (2010) signale par exemple que « la Division de la concurrence du ministère américain de la Justice n'utilise pas d'outils ou de données économiques pour tenter de détecter les ententes. Les initiatives menées en ce sens par le passé n'ont pas été fructueuses et le ministère de la Justice estime qu'elles ne constituent une utilisation judicieuse des ressources. » Cette manière de voir les choses est confirmée par l'exposé présenté par les autorités américaines à l'occasion de cette table ronde, qui conclut ainsi : le ministère de la Justice a utilisé plusieurs méthodes de filtrage d'ententes et a constaté qu'elles n'apportent pas de pistes solides pour les enquêtes sur les ententes. Pour l'heure, le ministère n'a pas l'intention de redéployer ses ressources d'enquête vers le filtrage d'ententes. » [DAF/COMP/WD(2013)117]

3.4.1 *Les filtres n'apportent pas la preuve déterminante et suffisante de l'existence d'une entente*

Les filtres peuvent certes se révéler fort utiles pour détecter et signaler les schémas inhabituels dans les résultats du marché, mais n'apportent pas la preuve déterminante et suffisante d'un comportement fautif. En général, le principal objectif du filtrage n'est pas d'apporter une preuve définitive qui permettra de condamner les parties à la collusion mais plutôt de repérer, sur les marchés, les signaux d'alerte empiriques justifiant une enquête approfondie¹³¹. Si les résultats induits par les filtres se révèlent efficaces à cet égard, ils inciteront les membres des ententes à se présenter aux autorités pour demander l'amnistie ou la clémence et contribueront au départ à dissuader la formation des ententes. Les autorités devront tout de même suivre différentes étapes (vérifications, poursuites et enquêtes) avant qu'une décision définitive concernant une entente soit arrêtée. Les filtres structurels, en particulier, peuvent se révéler utiles pour repérer les marchés et les secteurs *vulnérables* à la collusion mais ne peuvent pas être utilisés pour déterminer si des pratiques d'entente ont effectivement eu cours sur ces marchés. Leur application n'est que la première étape à l'issue de laquelle il peut être nécessaire d'examiner de plus près le comportement des entreprises (par exemple en appliquant un filtre comportemental) puis de mener une enquête proprement dite dans le but de réunir les éléments de preuves exigés par les tribunaux pour établir les pratiques d'entente.

3.4.2 *Les filtres peuvent générer de faux positifs et de faux négatifs*

Les filtres d'ententes peuvent produire de faux positifs (en attirant l'attention sur des affaires qui ne méritent pas d'examen plus poussé) ou de faux négatifs (en ne réussissant pas à détecter la collusion sur un marché donné), ce dont les autorités de la concurrence doivent être conscientes lorsqu'elles décident de mettre en œuvre un programme de filtrage d'ententes¹³². Les concepteurs de filtres cherchent en priorité à atténuer le plus possible ces deux types d'erreurs, mais il semble que le risque d'échec soit inhérent aux filtres ou qu'il soit très difficile de l'atténuer dans certains cas. Les modèles et hypothèses économiques sur lesquels reposent un filtre donné influencent considérablement la probabilité que ce filtre produise l'un ou l'autre type d'erreur¹³³. Par exemple, il est vraisemblable qu'un filtre structurel conçu pour attirer l'attention sur des marchés possédant les caractéristiques qui, en principe, sont de nature à accroître la probabilité de collusion, produira de faux positifs¹³⁴ pour la simple raison que la *propension* à la collusion n'indique pas qu'un comportement anticoncurrentiel a *effectivement* eu lieu. Ce type de filtres, qui sont sans doute plus simples à mettre en œuvre, ne fournissent que des indications limitées aux autorités de la concurrence qui cherchent à engager des enquêtes d'office indépendantes.

En revanche, un filtre comportemental conçu spécialement pour un marché donné, par exemple une adjudication caractérisée par des règles particulières¹³⁵, n'aura d'utilité que ponctuelle. Son application

¹³¹ Dans certains cas, cependant, les résultats obtenus à l'aide des filtres ont été présentés comme éléments de preuve devant les tribunaux par les autorités de la concurrence. Dans une affaire survenue au Mexique (examinée à l'annexe 2, section 2.1), les tribunaux ont estimé que les résultats du filtrage étaient suffisants pour prouver le comportement illicite.

¹³² Voir les observations formulées par Oliver Guersain et Julian Joshua, de la Commission européenne, dans l'édition 2006 du forum *European Competition Law Annual* (2006).

¹³³ Voir ABA (2010).

¹³⁴ Harrington (2008). Le problème des faux négatifs affecte aussi les filtres structurels : les rapports des autorités de la concurrence partout dans le monde indiquent qu'il arrive également que des ententes se forment et prospèrent pendant de nombreuses années sur des marchés qui ne présentent aucune des caractéristiques structurelles considérées comme rendant les marchés plus exposés aux ententes.

¹³⁵ Voir par exemple le « test de soumission » élaboré par Conley et Decarolis (2013) dans le cadre des adjudications au prix moyen d'enchères.

dans d'autres contextes ne donnera pas forcément des résultats exacts si, par exemple, le filtre repose sur des hypothèses incompatibles avec ces contextes ou tient compte de caractéristiques de marché qui n'y sont pas présentes¹³⁶. En pareils cas, il se peut que les indicateurs utilisés pour détecter la collusion sur un marché donné dénotent, dans les autres contextes, soit une activité d'entente, soit, à la fois, une situation de concurrence et une situation de collusion. L'efficacité des filtres spécifiques sur un marché particulier exige que leurs concepteurs possèdent un certain nombre de données sur le fonctionnement de ce marché et sur les différents équilibres de concurrence ou de collusion possible qui le caractérisent¹³⁷. Par conséquent, même en supposant que les autorités de la concurrence disposent de données suffisantes et exactes pour appliquer les filtres, ceux-ci peuvent se révéler inefficaces s'ils souffrent de défauts de conception. Il est certes possible d'atténuer cette probabilité en adaptant le modèle et l'hypothèse sous-jacente en fonction d'un marché donné, mais cela peut se révéler coûteux, en particulier pour les autorités de la concurrence qui souhaitent procéder à l'application systématique de filtres à de nombreux marchés¹³⁸.

Les autorités de la concurrence ne doivent pas pour autant se laisser rebuter par le fait que les filtres empiriques peuvent se révéler inefficaces et générer de faux positifs et de faux négatifs. Parmi les solutions qui peuvent permettre d'atténuer les erreurs, mentionnons celle qui consiste à exécuter des programmes de filtrage comportant une série de tests plutôt qu'un seul¹³⁹. En ce qui concerne les risques de faux positifs, les filtres empiriques ne sont généralement pas conçus pour servir de preuve déterminante et suffisante du comportement illicite, mais bien de point de départ pour la détection proactive des ententes par les autorités de la concurrence. Si les autorités de la concurrence sont au fait des possibles insuffisances des filtres et, partant, interprètent les résultats avec circonspection, elles doivent chercher à réduire la probabilité de faux positifs dans toutes leurs décisions définitives. En ce qui concerne les faux négatifs, l'incapacité à détecter les ententes peut de fait se révéler onéreuse. Cependant, un filtre empirique inefficace sur un marché donné ne le sera pas forcément sur d'autres marchés. De plus, le filtrage a pour objet la détection immédiate des ententes, mais aussi l'optimisation des incitations à se tourner vers les programmes de clémence et l'augmentation du niveau de dissuasion. Par conséquent, les filtres empiriques qui génèrent parfois de faux négatifs peuvent tout de même contribuer à dissuader et à faire cesser les ententes en décourageant leurs membres et en les incitant à renoncer à leurs activités ou à présenter une demande de clémence.

3.4.3 *Les filtres ne font pas la part entre la collusion explicite et la collusion tacite*

Un type particulier de faux positif s'explique peut-être par le fait que les filtres ne semblent pas faire pas la distinction entre la collusion explicite et la collusion tacite. L'équilibre de collusion peut être atteint et maintenu par des communications et des accords explicites qui sont généralement considérés comme illicites en soi, mais aussi par un « parallélisme conscient » qui dispense les entreprises d'adopter un quelconque comportement illicite. Les filtres empiriques sont souvent centrés sur les caractéristiques et les

¹³⁶ Par exemple, un filtre utilisé pour détecter une affaire de soumissions concertées peut avoir une capacité limitée à détecter les autres types de collusions. Voir les observations formulées par Bolotova, Connor et Miller (2008) au sujet de Abrantes-Metz, Froeb, Geweke et Taylor (2006)).

¹³⁷ Par exemple, ABA (2010) ; Bolotova, Connor et Miller (2008) ; Doane, Froeb, Sibley et Pinto (2013). Pour des exemples d'indices correspondant soit au jeu normal de la concurrence, soit à une entente, voir par exemple Rey (2006). Un autre aspect qu'il convient de prendre en compte lors de la conception de filtres et de la caractérisation de modèles est que les filtres sont fondés sur la connaissance courante qu'ont les économistes en matière d'ententes, qui peut être naturellement biaisée en raison du manque de données sur les caractéristiques des ententes qui n'ont pas été mises au jour.

¹³⁸ Par exemple, selon Harrington, un argument militant contre l'utilisation des marges prix-coûts comme indicateurs de collusion est la variation considérable de ces marges entre les différents secteurs, qui peut s'expliquer par de nombreux facteurs autres que la collusion (Harrington, 2008).

¹³⁹ Par exemple, Lorenz (2008).

résultats du marché ou encore sur le comportement des entreprises qui peuvent être observables tant dans le cadre de la collusion explicite que de la collusion tacite. Dans ces cas, les filtres ne feraient pas la part entre une activité licite et une activité illicite¹⁴⁰. En d'autres termes, le risque d'obtenir ce type particulier de faux positif (c'est-à-dire de détection du « mauvais » type de collusion) est quasiment inhérent au filtrage.

Encadré 7 – Les filtres peuvent-ils faire la part entre la collusion tacite et la collusion explicite ?

Dans des circonstances particulières, les filtres peuvent faire la part entre la collusion tacite et la collusion explicite, par exemple lorsque le résultat détecté est hautement improbable sauf s'il découle d'une coordination explicite.

Abrantes-Metz et Metz¹⁴¹ cherchent à déterminer jusqu'à quel point les filtres peuvent faire la part entre la collusion explicite et la collusion tacite. À cette fin, ils examinent des données concernant l'établissement du LIBOR, et en particulier le coefficient de variation (interbancaire) des cotations fournies quotidiennement pour le calcul du LIBOR par un échantillon de banques participantes. Ils constatent la quasi-absence de variation entre les cotations entre le début d'août 2006 et le début d'août 2007 et, par la suite, de brusques variations. En supposant que toutes les banques soumettaient des cotations distinctes chaque jour (de fait, les cotations se sont situées en moyenne au même niveau jour après jour), ils attendaient un coefficient de variation plus important¹⁴².

Pour exclure la collusion tacite entre les banques, Abrantes-Metz et Metz analysent aussi les cotations de chaque banque et observent que celles-ci soumettaient des cotations identiques jour après jour. Les cotations changeaient d'un jour sur l'autre¹⁴³. Cela permet d'exclure que les banques, « tirant ainsi les leçons » de la stratégie des autres banques « ont réagi » pour converger vers une cotation commune¹⁴⁴. Les auteurs concluent : « *compte tenu du fait que les cotations sont remises sous pli cacheté, la probabilité que les banques modifient leurs estimations dans le même sens d'un jour sur l'autre sans concertation explicite est extrêmement faible, en particulier parce que les particularités de chacune ne permettent pas de supposer que leurs cotations seront complètement identiques en l'absence d'entente. Enfin, on peut difficilement expliquer la concordance des annonces par la collusion tacite ou l'apprentissage stratégique : la variation est brusque, les cotations sont sous pli cacheté et changent parfois d'un jour sur l'autre, de manière identique. L'explication la plus probable est la collusion explicite. Seuls le temps et une enquête minutieuse apporteront une réponse définitive à cette question.* »

3.4.4 Le filtrage, une activité à forte intensité de données

Des informations et des données suffisantes, pertinentes et exactes sont nécessaires à tous les stades de la mise en œuvre des filtres, depuis leur conception jusqu'à leur application et à l'interprétation des résultats. L'obtention de ces données constitue un aspect fondamental d'une méthode empirique et le

¹⁴⁰ Harrington (2006) ; Friederiszick et Maier-Rigaud (2008).

¹⁴¹ Abrantes-Metz et Metz (2012).

¹⁴² L'absence de variation entre les cotations du LIBOR ne pouvait pas s'expliquer par des coûts d'emprunt identiques. Les banques examinées sont sensiblement différentes en termes de particularités et de coûts d'emprunt (leurs portefeuilles d'actifs présentent un risque différent, la structure de leurs engagements est variable et elles participent à des degrés divers aux activités de segments de marché différents.)

¹⁴³ Notons que les cotations de chaque banque sont soumises sous pli cacheté et ne sont communiquées qu'après le calcul du LIBOR.

¹⁴⁴ Les éléments de preuve utilisés à l'appui de cette étude sont reproduits à l'annexe 2, section 3.3 du présent document, qui traite de l'application de filtres pour détecter une éventuelle manipulation du LIBOR .

risque d'échec est grand si, lors de la collecte des informations nécessaires, les membres de l'entente apprennent qu'ils font l'objet d'un examen approfondi de la part de l'autorité de la concurrence¹⁴⁵.

La caractérisation correcte du modèle économique qui sous-tend la conception d'un filtre peut nécessiter des informations sur le fonctionnement du secteur ou du produit qui doit être examiné. Par exemple, le fait que l'entreprise soit éloignée de ses clients est utilisé dans certains modèles comme mesure des coûts¹⁴⁶, alors que l'éloignement n'a pas d'intérêt pour l'analyse d'autres types de secteurs (ceux qui reposent par exemple sur des systèmes de distribution en ligne). Le fait de ne pas prendre en compte ce type d'informations lorsque l'on applique des filtres peut conduire à l'échec. De même, les filtres peuvent être très sensibles à la quantité et à la qualité des données utilisées¹⁴⁷. Par exemple, l'application d'un filtre d'écart de prix¹⁴⁸ à des données agrégées (par exemple, des prix moyens annuels ou mensuels) contenues dans des études consacrées au marché peut conduire à des résultats totalement différents de ceux qui seraient obtenus si l'application portait sur des données désagrégées (par exemple, des cotations quotidiennes¹⁴⁹). De plus, les données obtenues directement auprès des entreprises sont parfois plus précises et plus fiables que les données librement accessibles publiées dans les médias, les études de marché et d'autres documents, mais il se peut que l'autorité de la concurrence n'y ait pas accès¹⁵⁰. Enfin, l'absence de données sur le marché peut fausser l'interprétation des résultats. Par exemple, un filtre peut permettre de détecter des comportements de collusion entre deux sociétés sœurs ; cependant, si l'autorité de la concurrence ne dispose pas d'informations sur la nature des participations au capital de ces sociétés, les résultats peuvent être trompeurs.

La collecte de données soulève de nombreux problèmes parce que l'incapacité à réunir les données nécessaires pour l'application d'un filtre donné peut conduire à l'échec¹⁵¹. Le manque de données peut également dissuader l'utilisation de filtres, sachant que la collecte peut demander du temps et des ressources ou se révéler impossible dans la pratique. Autre source de complication, les démarches engagées pour obtenir les informations nécessaires contribuent parfois à avertir les entreprises participant à une entente de l'intention de l'autorité de la concurrence d'enquêter sur un marché donné et peuvent les inciter à dissimuler les éléments de preuve directe ou indirecte de l'existence de l'entente. Mentionnons également que l'autorité de la concurrence peut être induite en erreur par les données publiées par des entreprises qui ont intérêt à dissimuler leur comportement illicite. Certains chercheurs suggèrent à cet égard que l'autorité de la concurrence utilise des filtres qui nécessitent des données faciles d'accès, comme les filtres conçus pour la détection des soumissions concertées¹⁵². Cette approche peut toutefois générer des

¹⁴⁵ La plupart des autorités qui utilisent des techniques de filtrage traitent partiellement ce problème en s'appuyant dans la mesure du possible sur des données provenant de sources publiques comme les rapports publiés par les secteurs d'activité concernés ou les bases de données officielles.

¹⁴⁶ Par exemple, Porter et Zona (1999).

¹⁴⁷ Le fait que de nombreux filtres ont été élaborés à l'aide de données de soumissions provenant d'appels d'offres publics n'est pas dû au hasard. La richesse et la qualité de ce type de données facilitent la conception et la mise à l'essai des filtres empiriques utilisés pour la détection des soumissions concertées.

¹⁴⁸ Comme celui proposé par Abrantes-Metz, Froeb, Geweke et Taylor (2006).

¹⁴⁹ Par exemple, Esposito et Ferrero (2006).

¹⁵⁰ Sans compter qu'en demandant ces informations aux entreprises, l'autorité de la concurrence risque de les avertir de l'ouverture d'une enquête.

¹⁵¹ Selon Abrantes-Metz, l'une des règles d'or en matière de filtres est que dans le domaine des travaux empiriques, la qualité des données utilisées détermine inéluctablement celle des résultats auxquels conduit l'analyse desdites données (Abrantes-Metz, 2011).

¹⁵² Harrington (2008), par exemple, qui propose également que les autorités de la concurrence recueillent activement des données sur les prix selon une périodicité élevée.

faux négatifs parce que les données faciles d'accès sont souvent agrégées. De plus, les filtres fondés sur ce type de données, comme celles qui concernent les prix, ne prennent pas forcément en compte de nombreux facteurs, notamment les coûts et les chocs sur la demande, qui affectent le comportement des entreprises et les résultats du marché.

3.4.5 *Le filtrage, une activité à forte intensité de ressources*

La mise en œuvre d'un programme de filtrage peut nécessiter des ressources humaines considérables dotées de compétences et d'expériences spécifiques. Cependant, il ne faut pas s'opposer à l'utilisation de filtres au seul motif qu'ils engendrent des coûts en ressources. L'application du droit de la concurrence doit mobiliser d'importantes ressources et l'engagement de poursuites exige beaucoup plus de ressources que l'utilisation d'un filtre classique. Pourtant, nous continuons de préconiser l'application effective du droit de la concurrence. Les autorités de la concurrence doivent savoir que l'élaboration d'un filtre ou l'adaptation d'un filtre existant nécessitent dans certains cas des compétences particulières, par exemple dans le domaine de l'économétrie. La collecte et le traitement des données, la formation du personnel, l'application du filtre, l'interprétation des résultats et, au bout du compte, le suivi des pistes apportées par le filtre, peuvent également être très fastidieux et induire des coûts d'opportunité élevés.

Prenons l'exemple d'un filtre structurel conçu pour attirer l'attention sur des secteurs exposés à la collusion. Ce type de filtre peut être plus simple à appliquer que les filtres très spécifiques. Cependant, les filtres structurels génèrent en général des faux positifs ; cela peut obliger les autorités de la concurrence à recourir à des ressources supplémentaires pour enquêter de façon plus poussée sur l'éventuelle présence d'une entente sur un marché donné. En revanche, les modèles très spécifiques conçus pour des secteurs particuliers génèrent peut-être moins de faux positifs mais leur mise en œuvre peut être de loin beaucoup plus complexe quant à la conception d'un filtre ou à l'adaptation d'un filtre existant, à la formation du personnel, à la collecte des données nécessaires ou à l'interprétation des résultats¹⁵³.

3.4.6 *Le risque que les entreprises échappent à la détection*

Un autre sujet de préoccupation est la capacité des entreprises parties à une entente à échapper à la détection en adaptant leur comportement de manière à « contourner » le filtre. Ce peut être le cas lorsque l'approche générale et la méthode de filtrage de l'autorité de la concurrence sont connues du public¹⁵⁴. Par exemple, lorsque les autorités de la concurrence cherchent des « ruptures structurelles » dans les mécanismes de fixation des prix, les entreprises fautives peuvent échapper à la détection en augmentant les prix modérément (elles perdent ainsi une partie des bénéfices supérieurs au niveau concurrentiel) afin de dissimuler le « changement de régime », à savoir le passage de la concurrence à la collusion¹⁵⁵. C'est ce qui s'est produit lors de la mise en œuvre, par le ministère de la Justice des États-Unis, d'un programme de détection des soumissions suspectes dans le cadre des marchés publics (un programme qui portait sur les offres identiques). Les soumissionnaires avertis de l'existence du programme de filtrage ont fait en sorte d'échapper à la détection en présentant des offres très similaires mais non identiques et le programme a par conséquent été abandonné.

¹⁵³ Notons à cet égard que le programme de surveillance des prix de l'essence et du gazole adopté par la FTC aux États-Unis (voir annexe 2, section 3) a été critiqué pour sa forte intensité de ressources. Selon un observateur, il n'est pas possible de reproduire un programme de ce type pour l'appliquer dans d'autres secteurs. Voir les observations formulées par Thomas Barnett et William Kovacic dans le cadre du forum *European Competition Law Annual* (2006).

¹⁵⁴ Par exemple, Friederiszick et Maier-Rigaud (2008) ; voir aussi les observations formulées par Patrick Rey dans le cadre du forum *European Competition Law Annual* (2006).

¹⁵⁵ Harrington (2008).

Les chercheurs traitent ce problème de deux manières. Premièrement, ils proposent de mettre au point des tests difficiles, coûteux et dangereux à contourner¹⁵⁶. Dans l'idéal, les efforts déployés par les entreprises pour contourner les filtres les empêcheraient de tirer parti de l'entente (parce que cela les forcerait à simuler la concurrence et à pratiquer des prix concurrentiels) ou augmenteraient sensiblement la probabilité de détection (parce que les entreprises devraient communiquer entre elles ou se réunir souvent pour se concerter¹⁵⁷). Deuxièmement, les autorités de la concurrence pourraient empêcher certaines entreprises de contourner les tests en ne divulguant pas les caractéristiques des filtres¹⁵⁸. Il se peut également que certaines entreprises « naïves » parties à des ententes ne réussissent pas à contourner des tests, si simples soient-ils¹⁵⁹.

4. Conclusions

La présente note a tenté de répondre à deux questions fondamentales qui se posent aux autorités de la concurrence dans le cadre de leurs activités quotidiennes : où et comment détecter les activités d'entente ?

Même si les programmes d'amnistie et de clémence se sont multipliés avec succès dans de nombreux pays et ont apporté une impulsion particulière à la mise en œuvre de la législation sur la concurrence à l'échelle mondiale, de nombreux observateurs estiment que le fait de s'en remettre exclusivement aux outils de détection réactive ne constitue pas une politique de la concurrence solide et qu'il serait avisé d'associer les programmes d'amnistie et de clémence à des techniques plus proactives pour attirer l'attention sur les marchés et les situations où la collusion est peut-être à l'œuvre. La détection réactive augmenterait le nombre d'ententes mises au jour par les autorités de la concurrence mais aussi, inciterait davantage les entreprises à participer à des programmes d'amnistie et de clémence, ce qui dans l'ensemble renforcerait la dissuasion et la cessation des ententes.

Parmi les outils de détection réactive, l'analyse économique peut se révéler particulièrement prometteuse en matière de détection des structures de marché, des comportements et des résultats qui peuvent constituer des indices de collusion. Les auteurs de publications spécialisées ont mis au point des techniques de filtrage que les autorités de la concurrence peuvent utiliser pour améliorer l'effet dissuasif de leur action visant à assurer le respect des règles de concurrence et inciter encore davantage les entreprises à participer à des programmes d'amnistie et de clémence.

L'utilisation de filtres empiriques pour la détection des ententes peut jouer un rôle utile dans la lutte contre les pratiques anticoncurrentielles : ces filtres attirent l'attention sur les possibles situations de collusion qui devraient faire l'objet de vérifications plus poussées de la part des autorités de la concurrence et, le cas échéant, conduire à l'ouverture de poursuites ou d'enquêtes. L'analyse économique peut donc se révéler efficace dans la mise en œuvre du droit de la concurrence. Cependant, les filtres empiriques attirent simplement l'attention sur les comportements « suspects », ce qui constitue la première étape du dépistage du comportement d'entente proprement dit. L'activité de détection initiale doit être complétée par d'autres éléments de preuve avant qu'une décision définitive soit arrêtée quant à la violation des règles de concurrence. C'est pourquoi les filtres complètent généralement les autres outils de détection réactive et proactive dont se servent les autorités de la concurrence pour prendre connaissance des preuves concrètes de collusion.

¹⁵⁶ Par exemple Abrantes-Metz, Froeb, Geweke et Taylor (2006).

¹⁵⁷ Harrington (2008).

¹⁵⁸ Laitenberg et Huschelrath (2011).

¹⁵⁹ Harrington (2008).

Une approche solide de la détection des ententes au moyen de filtres économiques devrait comprendre une évaluation structurelle des secteurs d'activité d'un pays afin d'attirer l'attention sur ceux qui sont le plus exposés à la collusion, ainsi qu'une analyse comportementale des différentes entreprises et une analyse des résultats du marché. Ce filtrage comportemental attentif des secteurs signalés comme présentant un risque de collusion au stade de la première évaluation structurelle permettra de centrer les ressources sur les affaires qui doivent faire l'objet d'une évaluation complète des autorités de la concurrence à l'aide d'outils classiques de détection réactive (comme les programmes d'amnistie et de clémence) et/ou d'autres outils d'investigation (descentes à l'aube, entretiens et demandes d'informations) pour obtenir des preuves de l'existence d'une entente anticoncurrentielle.

Les filtres comportent de nombreuses limites dont certaines leur sont inhérentes (en général, ils n'apportent pas de preuve concrète de l'existence d'une entente et ne font pas part entre la collusion tacite et la collusion explicite). Ils présentent d'autres limites non négligeables tenant aux ressources et aux compétences nécessaires à leur application sur une base régulière. La difficulté d'accès à des données et des informations fiables peut également représenter un problème de taille. En raison de ces limites et du succès remporté par les programmes d'amnistie et de clémence, la plupart des autorités de la concurrence semblent encore envisager avec beaucoup de scepticisme la mise en œuvre systématique de programmes de filtrage empirique. L'enquête du RIC résume ainsi la situation : *« la plupart des autorités de la concurrence, y compris celles qui ont fait leurs preuves, n'utilisent pas d'outils ou de données économiques pour détecter les ententes et se fient plutôt à d'autres moyens qu'elles jugent plus efficaces et à même de favoriser une utilisation efficiente des ressources »*¹⁶⁰.

Il y a lieu de penser que les autorités de la concurrence auront davantage recours aux méthodes de filtrage lorsque celles-ci auront gagné en solidité et en facilité de mise en œuvre. Leurs expériences concluantes en matière de filtrage empirique pourraient également modifier leur perception des programmes de filtrage¹⁶¹. Certains spécialistes soulignent la valeur des informations réunies par les autorités de la concurrence sur les ententes mises au jour. Ces informations peuvent apporter un éclairage sur le fonctionnement interne des ententes et se révéler très utiles pour la conception de filtres plus efficaces à l'avenir. En outre, les recherches universitaires futures aboutiront peut-être à la mise au point d'autres méthodes permettant de faire la part entre la collusion explicite (illicite) et le parallélisme conscient (licite), l'incapacité des méthodes actuelles à faire cette distinction figurant parmi les principales limites des filtres. Enfin, on sous-estime parfois l'effet des filtres sur la dissuasion. Il est difficile de quantifier cet effet avec précision, mais rappelons qu'on ne peut se fier uniquement sur le nombre d'affaires mises au jour grâce à un programme spécifique de mise en œuvre des règles de concurrence pour en évaluer l'efficacité.

¹⁶⁰ RIC (2010).

¹⁶¹ Voir annexe 2 ci-après.

ANNEXE 1

EXEMPLES DE FILTRES COMPORTEMENTAUX ÉLABORÉS DANS LES PUBLICATIONS SPÉCIALISÉES

La présente annexe propose un aperçu des principaux filtres comportementaux mis au point dans les études empiriques. Ces filtres se répartissent en quatre catégories (i) les filtres fondés sur l'écart des prix/des soumissions ; (ii) les filtres fondés sur les soumissions anormales ; (iii) les filtres fondés sur les variables autres que le prix et (v) les filtres qui servent à détecter les manipulations et les fraudes autres que les ententes anticoncurrentielles.

1. Exemples de filtres d'ententes fondés sur l'écart des prix/des soumissions

Parmi les marqueurs de collusion proposés dans les publications spécialisées¹, les marqueurs liés aux prix comptent parmi les plus utilisés pour la conception des filtres empiriques. Ces marqueurs prennent habituellement en compte la supériorité des prix par rapport aux prix moyens attendus ; les fluctuations des prix qui ne peuvent s'expliquer par l'évolution de la demande ou des coûts ; la moindre réactivité des prix par rapport aux coûts ; la diminution des variations de prix entre clients ; la corrélation forte et positive des prix entre les entreprises ou entités ; le degré élevé d'uniformité des prix pratiqués par les différentes entreprises. La présente section examine quelques exemples de filtres fondés sur les variations des prix/des soumissions.

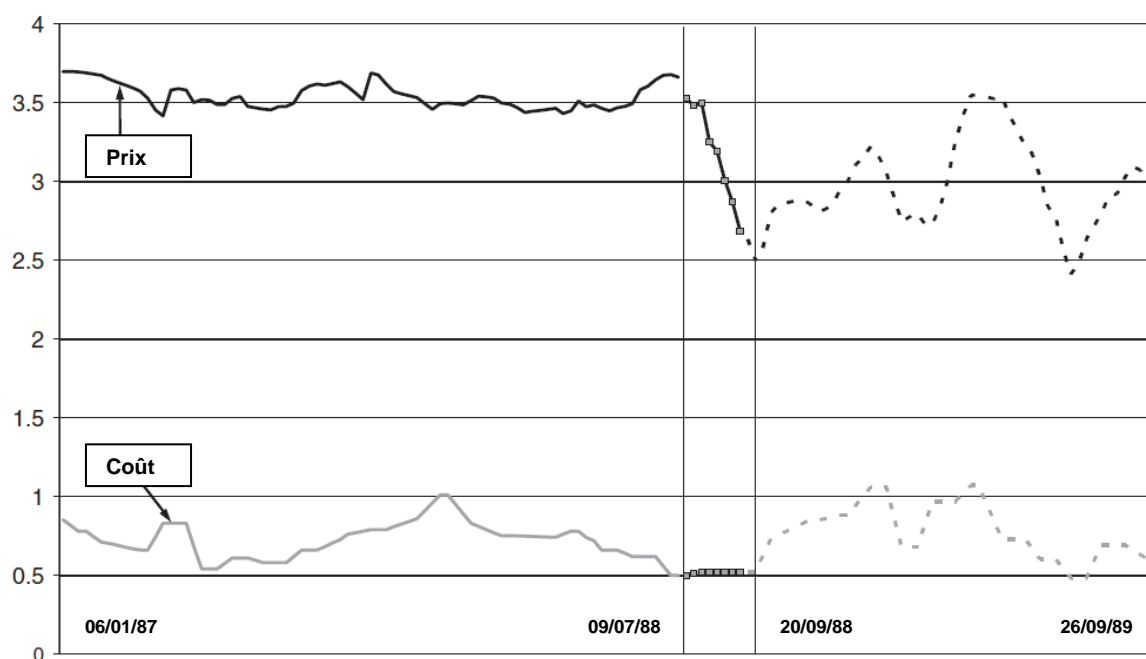
En 1993, Froeb, Koyak et Werden ont examiné les données relatives à une affaire avérée de soumissions concertées dans le cadre de la vente de poisson congelé au centre du personnel et du soutien du ministère de la Défense (*Defense Personnel and Support Center (DPSC)*) de Philadelphie². Leur modèle estime les effets sur les prix des pratiques de soumissions concertées et de fixation des prix en s'appuyant sur les différences de prix observées entre la période de collusion et la période de concurrence. Les données comparées portent sur trois périodes distinctes : (i) une période « préalable à l'entente » caractérisée par des prix relativement constants malgré les amplitudes fluctuations saisonnières des prix du poisson frais ; (ii) une période de « transition » caractérisée par une diminution rapide du prix de la perche congelée et une montée des coûts ; et (iii) une période « postérieure à l'entente ». Pour évaluer les prix qui auraient eu cours s'il n'y avait pas eu d'entente, les auteurs utilisent des séries de données chronologiques hebdomadaires sur la période postérieure à l'entente et appliquent un modèle de régression du prix log de la perche congelée en tant que fonction des coûts courants et retardés, mesurés au moyen des prix log de la perche fraîche. Le modèle est utilisé pour effectuer une prévision rétrospective des prix qui auraient été pratiqués en l'absence d'entente au cours des deux périodes qui ont précédé l'effondrement du dispositif de soumissions concertées. Les auteurs constatent que le prix pratiqué pendant l'entente était sensiblement supérieur au prix prévu pour une situation sans entente pour chacune des adjudications et l'existence d'une marge supplémentaire moyenne liée à l'entente comprise entre 23.1 et 30.4 % selon la période choisie pour définir les pratiques de soumissions concertées.

¹ Voir section 3.2.3 du présent document.

² Froeb, Koyak et Werden (1993).

À partir de données sur cette même affaire de soumissions concertées pour la fourniture de poisson congelé au ministère américain de la Défense, Abrantes-Metz, Froeb, Geweke et Taylor examinent l'évolution des prix pendant la période entourant l'effondrement de l'entente. Ils concluent que même si la moyenne a diminué de 16 %, l'écart-type a augmenté de plus de 200 %³. Pour évaluer les effets de l'entente, les auteurs s'attachent principalement à la période qui entoure son effondrement et limitent leur analyse aux filets de perche congelés (un des produits affectés par les pratiques de soumissions concertées). Ils réalisent un graphique illustrant le prix hebdomadaire moyen payé par le DPSC de Philadelphie pour les filets de perche congelés en s'appuyant sur les soumissions retenues ; les données sur les coûts correspondent au prix mensuel moyen de la perche fraîche. Le graphique 1a. ci-dessous illustre donc l'évolution des prix lorsque l'entente a pris fin à la suite de la présentation du compte rendu d'une enquête menée par le ministère de la Justice des États-Unis. Par rapport aux coûts, les prix de la perche congelée ont connu une baisse spectaculaire en août 1988. Après la période d'entente, les prix commencent à varier plus sensiblement dans le même sens que les coûts et démontrent une plus grande variation (dans le temps). Les auteurs comparent ensuite les prix et les coûts pendant la période de « collusion » (à gauche des lignes verticales) aux prix pratiqués pendant la période de « concurrence » (à droite des lignes verticales) et présument que la période située entre les deux lignes représente la transition entre la collusion et la concurrence.

Graphique 1.a – Prix et coûts de la perche congelée du 6 janvier 1987 au 26 septembre 1989



Source : Abrantes-Metz, Froeb, Geweke et Taylor (2006).

Les auteurs calculent ensuite le prix moyen et l'écart-type des prix, et constatent que lorsqu'il est normalisé sur la base de la moyenne, l'écart-type des prix, ou leur coefficient de variation, augmente de 332 % lors du passage de la collusion à la concurrence (voir tableau 1.a ci-dessous.) La moyenne et l'écart-type des coûts sont également supérieurs en situation de concurrence mais pas suffisamment pour

³ Abrantes-Metz, Froeb, Geweke et Taylor (2006).

rendre compte de l'augmentation de l'écart de prix. Les auteurs concluent que l'accord de soumissions concertées fait augmenter le niveau des prix mais qu'il réduit également leur écart⁴.

Tableau 1.a – Moyennes et écarts-types des prix et des coûts de la perche (\$/livre)

Statistiques	Collusion	Concurrence	Différence entre les régimes (%)
<i>Prix</i>			
Moyenne	3.544	2.97	-16.2
Écart-type	0.078	0.283	263
Coefficient de variation = écart-type/moyenne	0.022	0.095	332
<i>Coût</i>			
Moyenne	0.722	0.771	6.8
Écart-type	0.114	0.173	51.8
Coefficient de variation=écart-type/moyenne	0.158	0.224	41.8

Source : Abrantes-Metz, Froeb, Geweke et Taylor (2006).

Au contraire, l'examen par Bolotova, Connor et Miller⁵ des nombreuses données dont on dispose sur deux ententes, l'une sur la lysine et l'autre sur l'acide citrique, montre que l'écart des prix pendant l'entente sur la lysine était moindre, et celui observé pendant l'entente sur l'acide citrique, plus important, que pendant les périodes au cours desquelles le jeu de la concurrence s'exerçait davantage. Les auteurs utilisent les modèles ARCH⁶ et GARCH⁷ étendus pour examiner les différences de comportement pendant les deux premiers moments de la distribution des prix au cours des périodes de collusion et de concurrence. Ils posent l'hypothèse que pendant les périodes de collusion, le prix moyen est plus élevé et l'écart des prix, moindre que pendant les périodes sans collusion. Leurs résultats indiquent que s'agissant des deux ententes, les prix moyens étaient plus élevés pendant les périodes de collusion⁸. Les auteurs concluent que le filtre d'écart peut être utile pour détecter des ententes qui n'entraînent pas une augmentation sensible des prix mais tendent à uniformiser les pratiques des entreprises, ce qui peut faire augmenter les bénéfices et réduire l'écart des prix.

⁴ À partir de cette constatation, les auteurs appliquent le « filtre d'écart » à la vente d'essence au détail dans les stations-service de Louisville, au Kentucky, entre 1996 et 2002. Dans l'hypothèse d'une entente sur ce marché, ce filtre permettrait de repérer des groupes de stations-service situées à proximité les unes des autres et démontrant une variation de prix moindre et des prix plus élevés que les autres stations-service de la ville. Les auteurs ne repèrent pas de tels groupes et concluent que la concurrence est plus plausible que la collusion.

⁵ Bolotova, Connor et Miller (2008).

⁶ Il s'agit du modèle d'hétéroscédasticité conditionnelle autorégressive classique (ARCH).

⁷ Il s'agit des modèles généralisés ARCH (et GARCH).

⁸ Ce que les auteurs expliquent par la durée particulièrement longue de l'entente sur l'acide citrique : il serait plus difficile de mettre en œuvre une discipline d'entente sur une longue période. Ce résultat s'explique peut-être aussi par le fait qu'il existe moins de données sur les périodes sans collusion que sur la période pendant laquelle l'entente était en œuvre (voir Esposito et Ferrero (2006).)

Abrantes-Metz, Kraten, Metz et Seow appliquent plusieurs méthodes de filtrage afin d'établir si le taux LIBOR à un mois en USD a été manipulé par les banques⁹. Ils s'appuient sur la comparaison des taux LIBOR avec d'autres taux d'emprunt à court terme, l'examen des cotations fournies par chaque banque et la comparaison de leurs cotations respectives avec les primes des contrats d'échange sur le risque de défaut (*credit default swaps* ou CDS) au cours de trois périodes distinctes. Premièrement, ils examinent le lien entre le taux LIBOR et les autres principaux indices de référence en présumant que ces derniers n'ont pas été manipulés, et concluent que les données concernant le niveau moyen des taux LIBOR concordent avec l'absence de manipulation notable. Ils examinent ensuite le profil des différentes cotations du LIBOR et la probabilité que plusieurs banques soumettent des cotations identiques sans se concerter¹⁰. L'examen conclut à une possible manipulation. Les auteurs analysent enfin le lien entre les différentes cotations du LIBOR et les valeurs approximatives de différents coûts d'emprunt déterminés par les primes de CDS afin de vérifier si les banques affichant une prime de CDS relativement faible sont aussi celles qui ont fourni des cotations relativement faibles pour le calcul du LIBOR. Ils observent que plusieurs cotations soumises par plusieurs banques pour le calcul du LIBOR sont sans lien avec le classement de ces banques pour les primes de CDS et évoquent là encore la probabilité d'une manipulation de l'indice LIBOR.

L'utilisation de filtres d'écart est maintenant assez répandue dans les travaux empiriques et de nombreux filtres fondés sur l'écart des prix ont été conçus pour des marchés particuliers. Par exemple, Eruthku et Hildebrand utilisent la méthode des différences de différences pour déterminer si l'annonce publique de la tenue d'une enquête sur des pratiques anticoncurrentielles (qui a occasionné l'effondrement d'une entente) peut être utilisée pour détecter une entente sur la fixation des prix sur les marchés de la vente d'essence au détail au Québec¹¹. Jiménez et Perdiguero appliquent un filtre d'écart de prix (dans le temps) au marché de la vente d'essence au détail dans les Îles Canaries, en Espagne¹². Enfin, Abrantes-Metz et Pereira analysent le secteur de la téléphonie mobile au Portugal avant et après l'entrée d'un nouvel opérateur¹³.

2. Exemples de filtres d'ententes fondés sur l'analyse des soumissions anormales

De nombreux filtres ont été élaborés pour détecter les soumissions concertées dans les appels d'offres publics. Ce domaine se prête à la mise au point de ce type de filtres pour diverses raisons, notamment la richesse des données sur les marchés publics ; en général, les appels d'offres sont publics et les soumissions sont communiquées à la fin de la procédure, ce qui permet d'établir des ensembles de données complets qui peuvent ensuite servir à la vérification empirique des filtres. On peut ainsi comparer les caractéristiques des soumissions entre les appels d'offres, dans le temps ainsi qu'entre les différentes entités chargées des marchés publics qui achètent les mêmes biens et services. Les règles particulières qui régissent les appels d'offres permettent également de faire des hypothèses sur le comportement que doivent

⁹ Abrantes-Metz, Kraten, Metz et Seow (2012). On trouvera à l'annexe 2 du présent document un compte rendu plus détaillé de l'application des filtres en vue de détecter de possibles manipulations de l'indice LIBOR.

¹⁰ Pour ce faire, les auteurs examinent d'abord l'écart entre ces différentes cotations au cours d'une même journée. Ils calculent également la fréquence à laquelle chaque banque a fait partie du « groupe décideur » et recensent celles qui, en général, se trouvaient plus souvent dans ce groupe. Leur hypothèse est que les banques « manipulatrices » devaient être regroupées de manière non aléatoire. Pour vérifier cette hypothèse, les auteurs calculent des corrélations par paires entre toutes les possibilités de paires de banques et la fréquence à laquelle chaque banque a figuré dans le groupe décideur. Ils repèrent un groupe de banques qui se sont très souvent trouvées dans ce groupe.

¹¹ Eruthku et Hildebrand (2010).

¹² Jiménez et Perdiguero (2011).

¹³ Abrantes-Metz et Pereira (2007).

adopter les soumissionnaires dans un cadre concurrentiel¹⁴. Par exemple, dans les appels d'offres avec soumissions sous pli cacheté, on peut présumer que les soumissions reflètent les coûts et les conditions du marché propres à chaque soumissionnaire. La forte corrélation entre les soumissions présentées par des soumissionnaires indépendants les uns des autres (même en excluant les différences tenant aux coûts et aux conditions du marché) peut être l'indice d'une possible collusion¹⁵. En faisant fond sur ces hypothèses ou sur les caractéristiques des appels d'offres concurrentes, les économistes ont conçu de nombreux filtres destinés à détecter, dans les stratégies de soumission, des anomalies pouvant constituer des indices de comportement non concurrentiel.

En 1993, Porter et Zona ont examiné le comportement des soumissionnaires dans le cadre d'enchères pour la construction d'une autoroute pour un État américain afin de déterminer s'il y avait eu manipulation des offres¹⁶. Ces auteurs ont élaboré un test de soumission « fantôme » (ou encore de fausse soumission ou de soumission complémentaire) dans les marchés publics à partir des différences entre les soumissions des entreprises parties et non parties à une entente. À l'aide des données du ministère des Transports de l'État de New York, ils appliquent ce test aux marchés intervenus dans les comtés de Nassau et Suffolk entre 1979 et 1985. Ils observent que le comportement des entreprises parties à l'entente est statistiquement différent de celui des autres entreprises. En particulier, la collusion ne prend pas la forme d'un système de soumissions par rotation. Plusieurs membres de l'entente soumissionnent à la plupart des marchés, mais certains présentent de fausses soumissions, plus élevées. Les soumissions des entreprises non parties à l'entente ainsi que leur classement rendent compte des mesures des coûts. En revanche, le classement des fausses soumissions n'est pas lié à des mesures des coûts similaires et diffère de celui de la soumission basse présentée par un membre de l'entente.

En 1999, Porter et Zona ont mis au point un test de détection des soumissions concertées dans le cadre de marchés publics portant sur le lait pour cantines scolaires en se fondant sur la prédiction économique selon laquelle sur les marchés concurrentiels, les soumissions correspondent étroitement aux coûts. Ces auteurs examinent (i) les caractéristiques institutionnelles de la procédure de passation des marchés publics relatifs au lait destiné aux cantines scolaires ; (ii) les données de soumissions concernant 13 soumissions sous pli cacheté pour la fourniture de bouteilles de lait d'un demi-litre aux écoles de l'Ohio entre 1980 et 1990 ; (iii) les déclarations des dirigeants des laiteries concernées ; et (iv) les caractéristiques de l'offre dans l'Ohio pendant les années 1980. Ils comparent le comportement des trois entreprises accusées à celui de trois autres entreprises (groupe témoin¹⁷) et avec un simple modèle économétrique, montrent que la fonction de soumission de chaque entreprise en cause est statistiquement différente de celle des entreprises du groupe témoin. Les auteurs estiment qu'il y a eu collusion. L'effet moyen de la collusion sur les prix du marché est estimé à environ 6.5 %.

Bajari et Ye (2003) examinent des soumissions portant sur la fourniture d'un revêtement d'étanchéité par des entrepreneurs du domaine de la construction d'autoroutes dans la partie nord des États du Midwest américain pendant les années 90¹⁸. Leur filtre repose sur l'hypothèse selon laquelle l'éloignement et

¹⁴ Voir également la section 3.3.1 du présent document en ce qui concerne l'application des marqueurs de collusion dans les affaires de soumissions concertées.

¹⁵ Par exemple, le fait que les soumissions soient sensiblement plus corrélées sur un marché donné que sur un autre marché comparable est peut-être l'indice d'une certaine forme de coordination entre les soumissionnaires, notamment si on ne peut l'expliquer par des différences observables et légitimes entre les conditions des marchés.

¹⁶ Porter et Zona (1993).

¹⁷ En 1994, l'État de l'Ohio a accusé treize laiteries d'avoir présenté des soumissions concertées dans le cadre des marchés publics du lait pour les cantines scolaires, entre 1980 et 1990.

¹⁸ Bajari et Ye (2003).

l'arriéré de travail sont des éléments importants de la détermination des prix sur ce marché. À l'aide d'un modèle de régression prenant la soumission d'une entreprise comme variable dépendante et une estimation des coûts d'ingénierie, l'éloignement géographique par rapport au projet et l'arriéré de travail comme variables explicatives, les auteurs observent que les offres augmentent proportionnellement à ces deux mesures, comme on pourrait s'y attendre en situation de concurrence. Les données montrent que deux entreprises (sur 11) se livrent à la collusion. Des poursuites pour soumissions concertées ont d'ailleurs été engagées ultérieurement avec succès contre ces entreprises.

3. Exemple de filtres d'ententes s'appuyant sur des variables autres que le prix

Le prix n'est pas la seule variable de concurrence que l'on peut utiliser pour détecter la collusion¹⁹. Il existe d'autres variables qui se comportent différemment en présence de collusion, notamment les mécanismes à l'œuvre dans les différentes branches d'activité tels que l'équilibre du marché, l'innovation technologique, le taux de rendement et l'innovation produits²⁰. Les résultats de ces mécanismes sont différents selon que les règles de concurrence sont respectées ou non et on peut donc les utiliser pour détecter les ententes.

En 2008, Lorenz a proposé un filtre (diagnostic de défaillance de coordination - *Coordination Failure Diagnostic* (CFD)) fondé sur un certain nombre de tests conçus pour détecter les défaillances de ces mécanismes qui pourraient s'expliquer par la collusion²¹. Selon cet auteur, il y a en théorie économique cinq tâches de coordination que les mécanismes du marché sont censés remplir afin d'atteindre l'efficacité dynamique et d'optimiser le bien-être de la société : (i) en situation de concurrence, à court terme, l'offre doit répondre à la demande et les marchés doivent être à l'équilibre ; (ii) à long terme, les capacités et les taux de rendement du capital doivent être normalisés ; (iii) la concurrence doit éroder le pouvoir de marché ; (iv) des efforts doivent être déployés pour améliorer la qualité ou la diversité des produits ; et (v) les méthodes de production doivent être améliorées afin de réduire les coûts.

Le tableau 1.b ci-dessous présente une synthèse des marqueurs de collusion intégrés dans le filtre proposé par Lorenz.

¹⁹ Voir section 3.2.3.3 du présent document.

²⁰ Lorenz (2008).

²¹ Lorenz (2008).

Tableau 1.b – Marqueurs de collusion contenus dans le filtre de détection d’ententes CFD (diagnostic de défaillance de la coordination)

Mécanisme	Indicateur	Caractéristiques
Équilibre du marché	Prix nominal	Fluctuations rares et très irrégulières de l’indice des prix
	Utilisation des capacités	Faible utilisation des capacités Offre excédentaire durable
Normalisation du taux de rendement	Corrélation prix/quantité	Prix fixes pendant les périodes de baisse d’activité
	Taux de rendement	Taux de rendement anormalement élevé, peut-être réduit par des capacités excédentaires ou par des prix fixes en périodes de récession (à coûts fixes)
	Capacités	Capacités excédentaires, réduction possible seulement par des acquisitions
	Corrélation entre croissance des capacités et taux de rendement	Croissance des capacités dysfonctionnelle Les capacités excédentaires sont indépendantes du taux de rendement
Érosion du pouvoir de marché	IHH, nombre équivalent	Les ratios de concentration témoignent de l’existence d’un pouvoir de marché et d’un oligopole
	Instabilité des parts de marché	Faible instabilité des parts de marché, liée en particulier à l’application de quotas fixes
Innovation de produits	Parts de marché des nouveaux produits	Retards manifestes en matière d’innovation
Innovation de technologie	Productivité de la main-d’œuvre	La réussite de l’innovation est entravée par l’inefficience X
		Peu d’incitations aux gains de productivité sans concurrence

Source : Lorenz (2008), tableau 2.

Lorenz applique sa méthode au marché allemand du ciment, qui a été affecté par la collusion pendant des décennies et constate que cette pratique aurait pu être détectée dès le début des années 80²². Il conclut son analyse en plaidant en faveur de la mise en œuvre d’un contrôle au moyen d’un diagnostic de défaillance de la coordination. Premièrement, il démontre la solidité des méthodes de diagnostic de défaillance de la coordination en appliquant le filtre d’ententes à d’autres marchés également affectés par la collusion (tableau 1.c) et à des marchés sur lesquels il est présumé que les règles de concurrence sont respectées (tableau 1.d).

²²

Lorenz (2008).

Tableau 1.c – Marqueurs de collusion sur des marchés affectés par des ententes

Indicateur/Secteur	Ciment	Câble	Papier	Lysine	Expédition	Béton
Prix nominal	+	–	0	+	–	–
Offre excédentaire	+	+	+	+	+	+
Corrélation prix/quantité	+	+	+	+	+	+
Taux de rendement	+	–	–	0	+	–
Capacités excédentaires	+	+	+	+	+	+
Corrélation croissance des capacités/taux de rendement	+	+	+	0	+	0
IHH	+	+	+	+	+	–
Instabilité des parts de	+	0	0	+	0	0
Innovation de produits	+	+	+	0	0	0
Innovation technologique	–	+	0	0	0	+

(« + » représente un indicateur qui aurait constitué un indice de structure d'entente et « – » un indicateur qui n'a pas permis de détecter une entente. Les marchés sur lesquels les données nécessaires étaient trop onéreuses ou non disponibles pour des personnes privées sont identifiés par la mention « 0 ».

Source : Lorenz (2008), tableau 3.

Tableau 1.d- Marqueurs de collusion sur des marchés concurrentiels

Indicateur/Secteur	Génie électrique	Sidérurgie	Textile	Automobile	Construction de machines
Prix nominal	–	–	–	–	–
Offre excédentaire	–	–	+ ^a	–	–
Corrélation prix/quantité	–	–	–	–	–
Taux de rendement	–	–	–	–	–
Capacités excédentaires	–	–	+	–	–
Corrélation croissance des capacités/ taux de rendement	–	–	–	–	–
IHH	–	–	–	+ ^b	–
Instabilité des parts de	0	– ^c	0	+ ^d	0
Innovation de produits	–	–	–	–	–
Innovation technologique	–	–	–	+ ^e	–

^a L'offre excédentaire durable est causée par l'augmentation des importations à la faveur de la déréglementation de l'industrie textile dans le cadre de l'AGCS (*General Agreement on Tariffs and Trade - GATT*). Cette explication vaut aussi pour les capacités excédentaires.

^b Attribuable à la structure de marché oligopolistique dans le secteur automobile allemand

^c Des instabilités de parts de marché supérieures au seuil n'ont été observées que pendant la période d'entente.

^d L'instabilité des parts de marché mesurée pour les marques automobiles donne un écart de 0.0865 %, ce qui n'est pas révélateur d'une structure d'entente. Cependant, l'écart entre les marques qui ont attiré l'attention est de 0.0388 %, soit aussi peu que dans certains secteurs où des ententes sont présentes.

^e Cette baisse de productivité de la main-d'œuvre est causée par l'avance du Japon en tant que principal leader mondial en matière de coûts.

Source : Lorenz (2008), tableau 4.

Il semble que le filtre soit plutôt efficace pour détecter les ententes et que le nombre de faux positifs soit assez faible. Lorenz fait aussi remarquer les nombreux avantages de sa méthode : (i) elle fait appel à des données faciles à obtenir auprès des instituts de recherche ou des bureaux statistiques ; (ii) elle peut être mise en œuvre à l'aide des logiciels disponibles ; enfin (iii) il est coûteux de la contourner car pour ce faire, les parties à une entente doivent « *modifier leur comportement réel et renoncer à certains bénéfices pour tromper les autorités avec des parts de marché, des capacités et des innovations crédibles. Ces initiatives coûtent cher et peuvent rendre l'entente plus instable en modifiant la structure du marché*²³. »

En 2009, von Blanckenburg et Geist ont analysé « *le bon fonctionnement des marchés* » en s'appuyant sur plusieurs variables du marché afin d'évaluer si les mécanismes de marché sont compatibles ou non avec la concurrence²⁴. Ils définissent six variables : (i) le taux d'utilisation des capacités de production ; (ii) la corrélation entre le taux d'utilisation des capacités de production et les variations de prix ; (iii) les divergences entre le taux de rendement du secteur et un taux de rendement de référence plus global ; (iv) la corrélation entre l'écart de taux de rendement et l'évolution du taux de croissance des capacités ; (v) l'écart des variations de prix ; et (vi) l'écart des évolutions du taux de croissance des capacités²⁵. Ces deux auteurs prennent ensuite ces six variables pour analyser les mécanismes du marché réel à l'aide de séries chronologiques et vérifier s'ils fonctionnent efficacement. Ils proposent de tester cette méthode pour détecter des ententes dans cinq secteurs d'activité allemands pendant la période 1980-2007. Ils observent que le secteur allemand du ciment (dont on sait qu'il a été affecté par une entente entre 1981 et 2002) présente d'importantes différences par rapport aux quatre autres secteurs de référence pour la concurrence.

En 2010, ces mêmes auteurs ont appliqué leur méthode pour établir l'existence de collusion sur des marchés sur lesquels ils disposaient de données observables²⁶. Ils prennent les mêmes variables et attendent des profils comportementaux tels que le bas niveau d'utilisation des capacités ; l'ampleur limitée des ajustements des prix aux chocs exogènes ; des taux de rendement anormalement élevés ; des capacités presque constantes ; des variations de prix moins fréquentes ; et moindre écart entre les taux de croissance des capacités. Ils ajoutent toutefois une autre variable appelée à servir de marqueur d'ententes, à savoir le rapport coût-efficacité. Leur hypothèse est qu'en cas de diminution de la concurrence, le rapport coût-efficacité d'une entente diminue.

4. Exemples de filtres de détection des fraudes et des manipulations

Certains filtres ont également été élaborés dans le but de détecter des formes de comportements illicites autres que les ententes. En particulier, les autorités de réglementation - banque centrale, commission des valeurs mobilières, Trésor et autres autorités de surveillance²⁷ - ont régulièrement recours à des filtres pour détecter les fraudes et les manipulations. Il n'entre pas dans notre propos de fournir ici une description détaillée de ces filtres mais certains exemples permettront de mettre en évidence les différences et les points communs qui existent entre ceux-ci et les filtres d'ententes.

Les manipulations et les fraudes peuvent être très différentes des ententes, et cela doit être pris en compte lors de l'élaboration des filtres destinés à leur détection. Ces filtres sont en général, plus spécifiques à chaque affaire que les filtres d'ententes²⁸. Habituellement, une manipulation du marché (a)

²³ Lorenz (2008).

²⁴ von Blanckenburg et Geist (2009).

²⁵ Voir section 3.2.3.3 ci-dessus comment ces variables peuvent être utilisés comme marqueurs de collusion.

²⁶ von Blanckenburg et Geist (2011).

²⁷ Voir annexe 2, section 3 quelques exemples de manipulations et de fraudes détectées à l'aide de filtres.

²⁸ Abrantes-Metz, Kraten, Metz et Seow (2011).

fait intervenir moins de participants – il peut s’agir parfois d’une seule entreprise - qu’une entente ; et (b) n’est pas nécessairement centrée sur le maintien d’un niveau de prix fixe proprement dit, mais peut accentuer les variations de prix au cours d’une période donnée²⁹. Les principes qui sous-tendent la mise au point des filtres de manipulations et de fraudes sont toutefois similaires à ceux qui président à la conception des filtres d’ententes³⁰. Les filtres de manipulations visent à détecter les comportements inhabituels ou les comportements incompatibles avec le bon fonctionnement de certains mécanismes. Par exemple, les filtres qui servent à détecter des fraudes ou des manipulations financières doivent viser à détecter les distorsions de prix qui ne peuvent s’expliquer par la saisonnalité ni par les conditions courantes de l’offre et de la demande³¹.

Abrantes-Metz et Addanki ont récemment mis au point une méthode de filtrage afin de détecter d’éventuelles manipulations sur le marché des produits de base³². Cette méthode propose un filtre d’écart (dans le temps) permettant de détecter la manipulation des prix des produits de base en s’appuyant sur l’analyse de la manipulation des prix de l’argent par les frères Hunt en 1979-1980. Ces auteurs postulent que les manipulations induisent des bruits sur le marché et faussent les attentes du marché en ce qui concerne les prix futurs parce qu’elles procurent aux manipulateurs un avantage informationnel sur les autres intervenants. En trompant le marché, les manipulateurs faussent les attentes en ce qui concerne les prix futurs, ce qui se répercute sur la prime de risque. Les auteurs définissent le prix d’un contrat à terme comme étant l’attente du marché eu égard au cours acheteur comptant futur et observent que les manipulations entraînent davantage d’erreurs de prévisions de volatilité du marché en ce qui concerne les prix futurs. De plus, les effets des manipulations sont plus nets s’agissant des marchés à échéance lointaine qu’à échéance rapprochée.

Pirrong analyse la manipulation du droit américain des produits de base à travers le prisme de la distorsion alléguée du marché à terme du soja par Ferruzzi en 1989³³. Il vérifie deux hypothèses : (a) en cas de manipulation, le prix du contrat est sensiblement plus élevé que celui des contrats à échéance plus lointaine, une distorsion qui est souvent plus marquée immédiatement avant que le manipulateur ne liquide sa position ; et (b) le prix des marchés à terme arrivant à échéance et le prix au comptant sur le marché de livraison sont sensiblement plus élevés que les prix sur les marchés où il n’y a pas de livraison. Sa méthode repose en très grande partie sur des données historiques. Les résultats valident l’hypothèse selon laquelle la société Ferruzzi a exercé un pouvoir de monopole à l’origine d’une distorsion de prix estimée entre 5 et 10 %.

Christie et Schultz étudient des données sur les transactions effectuées sur le NASDAQ et remarquent un comportement anormal qui ne peut s’expliquer que par des pratiques de manipulation – explicite ou tacite – de la part des opérateurs. Sur le NASDAQ, les prix acheteur et les prix vendeur doivent être exprimés en multiples de un huitième de dollar pour les titres valant plus de 10 USD. Par conséquent, les prix acheteur et les prix vendeur sont établis en fractions de huitième paires (0, 2/8, 4/8, 6/8) ou impaires (1/8, 3/8, 5/8, 7/8). De ce fait, la fourchette interne minimum est de un huitième. Selon Christie et Schultz, si le marché n’est pas manipulé, toutes les fractions apparaîtront selon des fréquences à peu près égales, comme sur les autres bourses de valeurs. Ces auteurs constatent toutefois qu’il n’y a pratiquement pas de

²⁹ Tel est par exemple le cas des marchés de produits de base, sur lesquels les prix connaissent souvent de fortes augmentations avant de s’effondrer soudainement.

³⁰ Voir section 3.2 du présent document.

³¹ Par exemple, le déport est un signe habituel de manipulation sur les marchés des contrats à terme. On parle de situations de déport lorsque le prix d’un contrat à terme est inférieur au prix au comptant, à l’inverse de la situation de report, plus classique (Abrantes-Metz, Kraten, Metz et Seow, 2011).

³² Abrantes-Metz et Addanki (2007).

³³ Pirrong (2004).

fourchette interne minimum de un huitième sur l'action Apple. De fait, la quasi-totalité des prix acheteur sont exprimés en fractions de huitième paires (ce qui rend presque impossible les fourchettes en fractions de un huitième). L'examen des cent titres les plus échangés révèle que les cotations en fractions impaires de huitième sont extrêmement rares pour 70 d'entre eux, notamment les titres à grande visibilité et très échangés tels que Intel, Amgen, Microsoft et Cisco Systems. Christie et Shultz en déduisent que les teneurs de marché ont passé un accord afin de ne pas utiliser de cotations en fractions de huitième impaires sur ces 70 titres, une pratique qui assurait que la fourchette interne ne passerait pas sous les deux huitièmes, soit 0.25 USD par opération. Ils vérifient trois hypothèses qui pourraient expliquer ces comportements : (i) accroissement global des prix pour diminuer les coûts de négociation ; (ii) déterminants coûts de la fourchette ; et (iii) collusion tacite entre opérateurs. En procédant par élimination, les auteurs concluent que la seule hypothèse restante pour expliquer l'absence de fourchettes de un huitième impaires pour les titres du NASDAQ est la collusion tacite des teneurs de marché.

D'autres filtres utilisés pour la détection des manipulations et des fraudes s'appuient sur des lois mathématiques comme la loi de Benford. Cette formule mathématique décrit la distribution régulière des nombres³⁴. Comme la loi de Benford s'applique à un grand nombre d'ensembles de données, elle est souvent utilisée pour détecter quantité de fraudes et de manipulations, qu'il s'agisse de l'altération de données fiscales ou comptables, de ratios financiers ou de données d'enquêtes³⁵. Abrantes-Metz *et al.* ont récemment utilisé la distribution type du second chiffre pour contrôler le taux LIBOR quotidien entre 2005 et 2008³⁶. Ils observent que pendant deux périodes, les taux LIBOR s'écartent sensiblement de la distribution type de Benford attendue, ce qui les conduit à soulever de possibles problèmes quant à la neutralité des signaux émis par les 16 banques qui participent à la fixation du LIBOR. Les auteurs concluent que le LIBOR a probablement été manipulé et mettent en cause son utilité en tant que principal indicateur économique.

³⁴ La loi de Benford porte sur la fréquence d'apparition de chiffres dans plusieurs (mais non dans la totalité) des sources de données de la vie quotidienne. Dans cette distribution, le premier chiffre est 1 dans environ 30 % des cas et les chiffres plus élevés sont moins fréquents : ainsi, 9 est le premier chiffre dans moins de 5 % des cas. Cette distribution des premiers chiffres est la même que celle que l'on retrouve dans les largeurs des colonnes des tables de logarithme. La loi de Benford concerne également la distribution attendue des chiffres au-delà du premier chiffre, qui se rapproche d'une distribution uniforme. Voir Benford (1938) et Varian (1972).

³⁵ Voir par exemple les applications effectuées dans les analyses de Judge et Schechter (2009), Nigrini (2005) et Ashton et Hudson (2008).

³⁶ Abrantes-Metz, Villas-Boas et Judge (2011).

ANNEXE 2 -

FILTRES APPLIQUÉS PAR LES AUTORITÉS DE LA CONCURRENCE ET D'AUTRES AUTORITÉS DE RÉGLEMENTATION

1. Exemples de filtres *structurels* utilisés par les autorités de la concurrence

Certaines autorités de la concurrence ont appliqué des filtres structurels afin de repérer les secteurs dont les caractéristiques les prédisposent davantage que d'autres à la collusion. On a vu dans le corps de la présente étude que les méthodes structurelles apportent des éclaircissements utiles mais souffrent souvent de graves lacunes¹. Friederiszick et Maier-Rigaud en recensent quatre principales² :

- Premièrement, le niveau d'agrégation utilisé dans les filtres structurels est en général trop élevé pour permettre de détecter des marchés anticoncurrentiels spécifiques, et les classements par branche d'activité ne correspondent pas aux marchés anticoncurrentiels.
- Deuxièmement, l'étude empirique de secteurs variés exige des filtres « automatisés » correctement définis ; le programme de filtrage risque donc d'être contourné par les membres des ententes.
- Troisièmement, il est fréquent que le lien entre les facteurs économiques et la probabilité de collusion ne soit pas linéaire, et divers facteurs économiques peuvent avoir des effets différents sur la concurrence en fonction des caractéristiques du marché³.
- Quatrièmement, en se fiant aux ententes découvertes par le passé pour prédire des ententes futures dans d'autres secteurs d'activité, on introduit un biais de sélection si les ententes déjà détectées ne constituent pas un échantillon représentatif des ententes en général.

Les sections suivantes décrivent divers programmes de filtrage mis en place par les autorités de la concurrence.

1.1 *Le programme de filtrage structurel des Pays-Bas – l'indice de concurrence*

L'autorité néerlandaise de la concurrence (la NMa) a commencé en 2006 à utiliser des techniques de filtrage structurel pour renforcer son programme de mise en œuvre du droit de la concurrence⁴. À l'époque, la NMa venait tout juste de mettre au jour une entente sur le marché de la crevette, ce qui augurait des succès futurs de ces outils. Sa méthode reposait sur une analyse en deux étapes dont la première consistait à classer les secteurs d'activité selon leur code dans la classification NACE, en fonction du risque de

¹ Voir section 3.4.

² Friederiszick et Maier-Rigaud (2008).

³ Par exemple, dans une branche d'activité très concentrée, le degré élevé de parallélisme des prix peut être considéré comme un indicateur de forte probabilité de collusion, tandis que sur un marché très fragmenté, il correspond à la prédiction, selon la théorie, du comportement des entreprises concurrentielles.

⁴ Buijs et Vermeulen (2008).

collusion⁵. Cette première étape a permis à la NMa de recenser sur une base annuelle les 20 principaux secteurs méritant un examen approfondi. La deuxième étape, centrée sur le secteur d'activité, recourait à des filtres comportementaux fondés sur le prix, la quantité et les parts de marché. Cette méthode a toutefois fait l'objet de nombreuses critiques lors de sa mise en œuvre. Au cours de la première étape, la classification NACE restreignait l'utilité du filtre lorsqu'il s'agissait de repérer des marchés susceptibles d'être affectés par la collusion au sens de la réglementation relative à la concurrence. Les résultats étaient largement fonction du dispositif choisi de normalisation et de pondération des indicateurs, ce qui a valu au classement de nombreuses critiques. S'agissant de la deuxième étape de la méthode, il s'est révélé souvent impossible de réaliser le test comportemental en raison du manque de données appropriées, d'où le risque que de nombreuses ententes ne soient pas détectées.

Malgré ces premiers écueils principalement attribuables à la probabilité élevée de faux positifs, la NMa a mis au point, en 2011, une méthode révisée faisant appel à des techniques structurelles dans le cadre du calcul de l'indice de concurrence⁶. L'indice de concurrence fait fond sur les mêmes indicateurs que la méthode préalablement utilisée par la NMa : le nombre d'associations professionnelles, les prix des produits aux Pays-Bas par rapport aux moyennes dans les pays de l'Union européenne, l'indice Herfindahl-Hirschman (IHH), le nombre d'entreprises, le taux d'importations, la croissance du marché, le taux d'attrition, le taux de survie et la R-D exprimée en pourcentage des ventes. Ces indicateurs sont considérés comme étant à même de fournir des signes probables de comportement anticoncurrentiel. L'indice de concurrence évalue les secteurs d'activité⁷ en s'appuyant sur des données publiques et sur un système de pondération. Chaque secteur d'activité est noté en fonction de la probabilité de collusion. Les secteurs qui obtiennent un indice élevé peuvent faire l'objet d'un examen plus poussé par la NMa. L'indice de concurrence classe les secteurs d'activité en fonction de leur prédisposition au comportement anticoncurrentiel. L'examen des trente premiers secteurs du classement effectué à l'aide de la méthode fondée sur l'indice de concurrence montre que les industries manufacturières sont très bien représentées. Cela s'explique en grande partie par le nombre élevé d'associations professionnelles dans ces industries. Ajoutons que le résultat concernant le « nombre d'entreprises » est souvent proche de « une » (un signe possible d'oligopole). Les taux d'importations, par ailleurs ne produisent généralement pas de résultats de nature à indiquer un comportement anticoncurrentiel. De plus, il semble que les industries du transport et de la location de matériel de transport soient concentrées ; l'indice IHH normalisé obtenu pour ces industries est de 1.

⁵ Le risque de collusion a été défini sur la base d'une série d'indicateurs structurels répartis dans quatre catégories : 1) la concentration (mesurée par le nombre d'entreprises dans un secteur d'activité, l'IHH et la part des importations dans le chiffre d'affaires net) ; 2) la dynamique du marché (mesurée par la croissance moyenne du marché, l'attrition, le taux de survie, et la part de la R-D dans la valeur ajoutée brute) ; 3) l'indice des prix aux Pays-Bas (par rapport à la moyenne pondérée UE-15) ; et 4) l'organisation du secteur d'activité (mesurée par le nombre d'associations professionnelles qui y sont présentes). Les indicateurs étaient ensuite normalisés. Suivait le calcul d'un risque de collusion au moyen d'un dispositif de pondération prédéfini.

⁶ Petit (2012).

⁷ On parle de « secteurs d'activité » parce que l'indice de concurrence filtre des données sur 500 « secteurs d'activité » de l'économie néerlandaise qui ne correspondent pas nécessairement aux « marchés en cause » définis aux fins de l'application du droit de la concurrence. Grout et Sonderreger adoptent une approche similaire dans leur étude (Grout et Sonderreger, 2005). Bien que cette classification et l'utilisation de données disponibles au niveau du secteur d'activité concerné simplifient la collecte de données, la méthode a fait l'objet de critiques sévères parce qu'elle n'est pas suffisamment documentée, les secteurs d'activité ne correspondant pas aux marchés en cause définis aux fins de l'application du droit de la concurrence. Voir par exemple Laitenberger et Hüschelrath (2011).

La méthode fondée sur l'indice de concurrence tente de traiter plusieurs problèmes recensés dans le cadre du programme de filtrage précédent de la NMa et qui concernent par exemple la définition du marché et la pondération. Ainsi, afin d'étayer les données concernant l'absence de sensibilité de l'indice de concurrence au dispositif de pondération, plusieurs coefficients de pondération ont été appliqués. De plus, les résultats de l'utilisation de l'indice de concurrence ont été vérifiés à l'aune des ententes détectées dans d'autres pays (vérification pratique), une initiative qui a révélé un degré élevé de chevauchement. Enfin, la comparaison statistique de l'indice de concurrence avec d'autres méthodes de mesure de la concurrence comme la marge prix-coût ou l'indicateur de Boone (test théorique) fait état d'une corrélation faible mais non négligeable. L'un des principaux avantages de l'indice de concurrence est que l'ensemble de l'économie est examinée. De plus, cette méthode est facile à appliquer et nécessite peu d'apport de capital et de main-d'œuvre.

1.2 Les initiatives de l'autorité britannique de la concurrence (OFT) pour mettre en place un programme de filtrage structurel

Le Royaume-Uni a étudié la possibilité de recourir à une analyse économique structurelle dans le cadre de la mise en œuvre du droit de la concurrence. Dans une étude qui leur a été commandée en 2005 par l'OFT, Grout et Sonderegger mettent au point une méthode détaillée visant à prédire l'existence d'une entente en utilisant une classification type des industries⁸. Cette méthode définit des variables au niveau du secteur d'activité (notamment le chiffre d'affaires, les mesures des coûts, les mesures de la concentration, les obstacles à l'entrée et les coûts de main-d'œuvre) qui permettent de prédire les activités d'entente, et fait appel à un ensemble de données du ministère américain de la Justice concernant des affaires de fixation des prix survenues depuis 1994 et de données de la Commission européenne concernant ce type d'affaires depuis 1990.

Grout et Sonderegger s'appuient sur plusieurs modèles économétriques pour déterminer comment certains facteurs structurels peuvent agir sur la présence d'ententes dans un marché donné et sur la fréquence de leur détection. Ils prennent ensuite les résultats de ces deux estimations pour calculer la probabilité d'une entente dans l'ensemble des secteurs d'activité. Ils concluent que des secteurs comme les télécommunications, la construction d'aéronefs et d'engins spatiaux, la fabrication de produits de la minoterie et la fabrication de produits amylacés sont particulièrement exposés à la collusion. L'analyse de régression leur permet de dériver une probabilité de collusion par le passé et fournit aux autorités de la concurrence un moyen de donner une nouvelle orientation générale à leurs priorités en matière de répression.

Comme la méthode néerlandaise, la méthode élaborée par Grout et Sonderegger pour le compte de l'OFT a fait l'objet de nombreuses critiques parce que les classifications industrielles ne correspondaient pas aux marchés sur lesquels le droit de la concurrence est appelé à s'appliquer⁹ et qu'elle ne permettait pas de distinguer la collusion explicite de la collusion tacite. L'OFT reconnaît maintenant que les facteurs structurels peuvent aider à prédire la présence d'ententes dans un secteur d'activité mais qu'ils ne relèvent pas de la science exacte. C'est pourquoi la stratégie de détection des ententes de l'OFT fait fond sur une approche pluridimensionnelle qui intègre les plaintes des consommateurs et des concurrents et, dans certains cas, une analyse économique interne.

⁸ Grout et Sonderegger (2005).

⁹ Par exemple, Grout et Sonderegger relèvent que les « télécommunications » sont un secteur d'activité exposé à la collusion, mais (par exemple) ne font pas la part, au sein de ce secteur, entre la téléphonie fixe et la téléphonie mobile, qui n'ont pas les mêmes antécédents en termes de collusion et qui ne présentent pas le même degré de prédisposition à cette pratique.

1.3 Les filtres structurels utilisés par la U.S. Federal Trade Commission (FTC)

En 1998, l'autorité américaine de la concurrence (la FTC) a lancé un vaste projet de filtrage axé en particulier sur les évolutions de prix afin de détecter les problèmes de concurrence. La méthode de filtrage mise au point reposait sur l'hypothèse selon laquelle l'exercice d'un pouvoir de marché (et, de fait, d'une entente) entraîne une augmentation des prix tout au long du cycle économique. Le service de l'économie de la FTC a commencé à repérer les secteurs d'activité qui enregistraient des hausses de prix pendant des périodes où la production était stable et où l'activité était encore au ralenti dans le secteur concerné. À partir de différentes sources de données comme les indices de prix à la production du *Bureau of Labor Statistics*, la FTC a détecté environ 600 secteurs d'activité suspects, et en a sélectionné 25 en vue d'un examen plus poussé. Il n'a pas été possible d'expliquer par des raisons anodines les hausses de prix survenues dans trois de ces 25 secteurs. L'un d'entre eux faisait déjà l'objet d'une enquête approfondie du ministère américain de la Justice. Il n'existe aucun document accessible publiquement sur les résultats des autres enquêtes¹⁰.

Ces expériences montrent qu'une approche « en aveugle » risque fort de produire de faux positifs, ce qui explique peut-être que la FTC a cessé de recourir systématiquement aux outils de filtrage intersectoriels. La FTC continue cependant de filtrer systématiquement les prix sur un marché précis, celui de l'essence et du gazole, dans le cadre de ses fonctions de surveillance de l'industrie du pétrole et du gaz naturel¹¹. Depuis 2002, la FTC surveille les prix de gros et de détail de l'essence afin de déceler de possibles activités anticoncurrentielles et de déterminer s'il y a lieu d'ouvrir une enquête. Aujourd'hui, ce projet permet de suivre les prix de détail de l'essence et du gazole dans quelque 360 villes américaines et les prix de gros (à la rampe de chargement) dans 20 grandes agglomérations urbaines. Le *Bureau of Economics* de la FTC reçoit des données quotidiennes de la *Oil Price Information Service* (OPIS), une société de collecte de données, et examine d'autres informations pertinentes qui peuvent lui être communiquées directement par le public ou d'autres entités de l'administration fédérale ou des États fédérés.

Un modèle économétrique sert à déterminer si les prix de détail et de gros courants hebdomadaires sont « anormaux » par rapport aux données antérieures, après contrôle des chocs et effets saisonniers connus. Ce modèle compare les différences de prix pour une même période entre les villes et non le mécanisme dynamique d'ajustement des prix en tant que tel. Si les prix de détail en vigueur dans deux régions s'ajustent aux mêmes chocs sur les prix à un rythme différent, ils seront surveillés pendant une certaine période en raison de cette divergence. En cas de chocs sur les prix, les petites différences de rythme d'ajustement entre les villes n'aboutissent habituellement pas à la détection d'anomalies de prix. Cependant, le fait qu'un choc sur les prix assez important ne se répercute pas au même rythme dans les différentes régions peut conduire à des variations très marquées des écarts entre les prix en vigueur au même moment. À ce jour, toutes les anomalies de prix constatées par la FTC des États-Unis peuvent s'expliquer par des événements qui ne relèvent pas de la collusion (ruptures de pipelines ou mauvais fonctionnement des raffineries).

¹⁰ Selon Abrantes-Metz et Bajari (2012).

¹¹ Voir http://www.ftc.gov/ftc/oilgas/gas_price. Voir également l'exposé présenté par les États-Unis lors de la table ronde sur la concurrence dans le secteur du carburant routier (« *Competition in Road Fuel* ») organisée en juin 2013 [DAF/COMP/WD(2013) 45].

Encadré 2.a – Programme de surveillance des prix de l'essence de la FTC (Extraits de l'exposé présenté par les États-Unis lors de la table ronde de l'OCDE sur la concurrence dans le secteur du carburant routier (« *Competition in Road Fuel* »¹²))

[...]

18. La collusion est présente sur les marchés pétroliers. Depuis 1970, le ministère de la Justice a porté devant les tribunaux 23 affaires pénales concernant des accords de fixation des prix sur certains marchés locaux de l'essence et du gazole dans plus d'une douzaine d'États. Ces affaires ont conduit à la condamnation de 22 personnes physiques et de 55 personnes morales. La dernière affaire de fixation des prix de l'essence soulevée par la Division remonte à 2008¹³.

19. L'intérêt porté à la tarification de l'essence et du gazole se traduit largement par des initiatives visant à mettre au point un filtre de données qui permettrait de détecter les anomalies de prix pouvant constituer des indices de collusion tacite ou explicite. Dans le cadre d'un programme conçu spécifiquement pour les marchés pétroliers, la FTC surveille activement les prix de gros et de détail de l'essence et du gazole afin de suivre de près les évolutions des prix sur les marchés concernés. Ce programme permet de suivre les prix au détail de l'essence et du gazole dans quelque 360 villes américaines et les prix de gros dans 20 grandes agglomérations urbaines. Le personnel du *Bureau of Economics* de la FTC reçoit et examine régulièrement des données fournies par une société de collecte de données sur les prix des produits pétroliers, les informations fournies par le ministère de l'Énergie, ainsi que d'autres informations pertinentes. Le personnel de la FTC utilise un modèle économétrique pour déterminer si les prix de gros et de détail hebdomadaires en vigueur comportent des anomalies au regard des données antérieures.

20. Le programme de surveillance alerte le personnel de la FTC en cas de variations inhabituelles des prix de l'essence et du gazole afin qu'une enquête puisse être ouverte rapidement. Notons que ces variations ne signifient pas qu'il existe des comportements anticoncurrentiels mais témoignent simplement du fait qu'une modification est intervenue. Le plus souvent, elles sont imputables aux modifications des mécanismes du marché, par exemple à une rupture temporaire d'approvisionnement causée par des pannes imprévues dans les raffineries. Lorsque les variations inhabituelle des prix ne semblent pas induites par le marché, la FTC consulte l'*Energy Information Administration* du ministère de l'Énergie. Le personnel de la FTC contacte également les bureaux des procureurs généraux concernés pour débattre des anomalies et des mesures possibles appropriées, notamment l'ouverture d'une enquête.

21. Les instances concernées (la FTC et la Division du ministère de la Justice chargée de la lutte contre les pratiques anticoncurrentielles) font partie du *Oil and Gas Price Fraud Working Group*, un groupe de travail interorganisations créé par le Procureur général à la demande du président Obama au printemps 2011. Ses membres se réunissent en personne ou communiquent par d'autres moyens pour échanger des informations concernant leurs activités sur les marchés de l'énergie. La communication interorganisations aide chaque membre à élaborer et engager des programmes de mise en œuvre de la législation ainsi que d'autres programmes concernant les produits pétroliers et d'autres produits énergétiques.

[...]

¹² DAF/COMP/WD(2013) 45.

¹³ Communiqué de presse, *U.S. Department of Justice, Convenience Store Company and Individual Charged with Retail Gasoline Price Fixing in Oklahoma* (19 septembre 2008), consultable à l'adresse www.justice.gov/atr/public/press_releases/2008/237430.htm ; communiqué de presse, *U.S. Department of Justice, Tennessee Oil Company and its President Charged with Gasoline Price Fixing* (21 juillet 1993), consultable à l'adresse www.justice.gov/atr/public/press_releases/1993/211645.htm.

2. Exemples de filtres *comportementaux* utilisés par les autorités de la concurrence

Les filtres structurels peuvent être appliquées à un vaste éventail de secteurs et de branches d'activité, tandis que les filtres comportementaux sont centrés sur les résultats économiques obtenus sur un marché particulier. Ils sont plus souples et se prêtent davantage à une approche au cas par cas. Il va sans dire qu'ils ont aussi leurs limites, qui tiennent notamment à la difficulté d'accès aux données sur le marché ainsi qu'aux ressources nécessaires pour la mise en œuvre. C'est également pour ces raisons que les autorités de la concurrence ont rarement eu recours aux filtres comportementaux pour détecter des affaires d'ententes et ne le font qu'exceptionnellement aujourd'hui. On trouvera dans les sections ci-après un aperçu de certaines expériences nationales en matière de filtres comportementaux¹⁴.

2.1 Mexique

L'autorité mexicaine de la concurrence (*Comisión Federal de Competencia* (CFC), aujourd'hui appelée *Comisión Federal de Competencia Económica*) a réussi à détecter, au moyen de filtres d'ententes, des systèmes de soumissions relevant de la collusion dans des marchés publics de fourniture de plusieurs médicaments. La CFC a découvert que pendant la période de collusion, les prix des offres gagnantes et perdantes étaient identiques, tandis que les soumissionnaires remportaient les marchés en alternance. Il est également ressorti que le nombre de marchés attribués pour l'achat de certains types de médicaments était pratiquement le même. Dans cette affaire, les filtres se sont révélés utiles pour détecter des dispositifs suspects mais aussi pour délimiter l'enquête de la CFC et aller devant les tribunaux¹⁵.

Estrada et Vazquez¹⁶ et Mena-Labarthe¹⁷ décrivent en détail les filtres utilisés par la CFC pour détecter de possibles affaires de collusion. Au moyen de filtres de prix et de filtres de parts de marché, la CFC a repéré des cas d'offres identiques et de convergence des parts de marché des soumissionnaires dans le temps. La CFC a également constaté que le nombre de cas de soumissions identiques chutait et que le profil de convergence des parts de marché s'estompait après une entrée agressive sur le marché ou une modification de la stratégie d'achats de l'entité chargée de la passation des marchés publics (par exemple, en cas de regroupement des marchés publics). Dans son analyse, la CFC a considéré ces faits marquants comme des ruptures structurelles¹⁸. Au vu des résultats obtenus, la CFC a mené une enquête formelle sur deux des principales familles de médicaments (l'insuline et les solutions salines) et a ensuite adopté une décision constatant l'existence d'une infraction¹⁹.

¹⁴ Pour un exposé général sur la mise en œuvre de différents filtres par les autorités de la concurrence, voir Laitenberger et Hüschelrath (2011).

¹⁵ Mena-Labarthe (2012). Notons qu'au moment de l'enquête, la CFC n'était pas habilitée à mener des inspections impromptues (descentes à l'aube) auprès des entreprises participant à l'entente présumée. Cela restreignait sensiblement sa capacité à obtenir des preuves directes de l'entente et a conduit les tribunaux à manifester davantage d'ouverture à l'égard de l'utilisation de preuves économiques indirectes.

¹⁶ Estrada et Vazquez (2013).

¹⁷ Mena-Labarthe (2012).

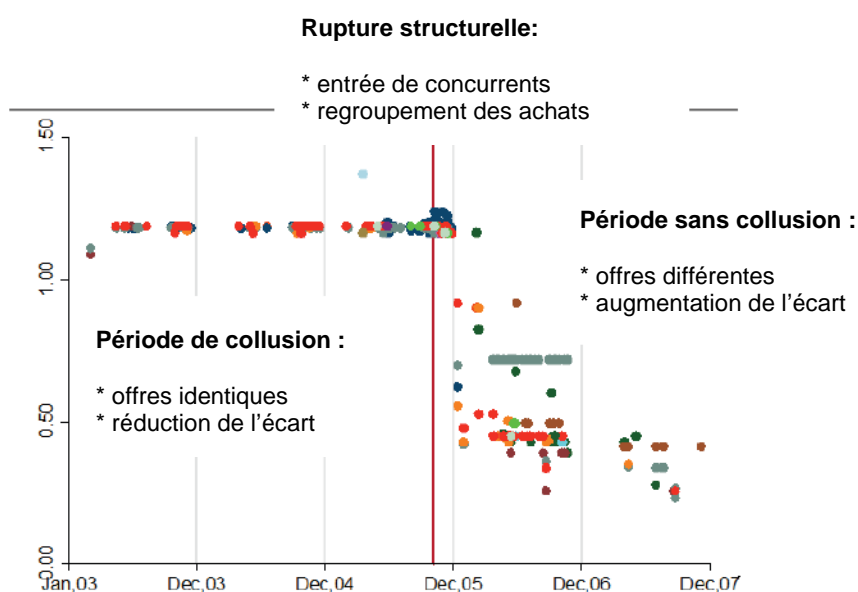
¹⁸ La CFC a défini comme rupture structurelle la modification de la stratégie d'achats de l'IMSS. L'IMSS a en effet décidé de regrouper les possibilités de marchés publics pour chaque médicament sur quelques grands marchés à l'échelon national plutôt que sur plusieurs marchés morcelés à l'échelon local. Ce regroupement concernait tous les médicaments et a accru les incitations à la concurrence tout en rendant plus difficile le recours aux accords de répartition des marchés. En outre, avant même ce regroupement, certains fournisseurs ont réalisé une entrée agressive sur le marché, laquelle a produit des effets similaires.

¹⁹ Selon Mena-Labarthe, l'enquête faisait suite à une plainte informelle déposée par l'Institut mexicain de sécurité sociale (IMSS) et la CFC a utilisé des filtres pour analyser l'important volume de données

Selon la CFC, le fonctionnement efficace des soumissions concertées était également facilité par des facteurs structurels inhérents à la procédure d'appel d'offres, qui permettait aux soumissionnaires de se répartir les marchés et de contrôler le respect de l'accord par les entreprises qui y étaient parties. Mena-Labarthe a montré que ces facteurs consistaient en ce que (i) les règles d'appels d'offres énoncées par l'entité chargée de la passation des marchés publics contribuaient à l'uniformisation des produits, ce qui restreignait les possibilités de concurrence accrue ; (ii) la fréquence élevée des marchés permettait le contrôle de l'accord de collusion ; (iii) les communications entre soumissionnaires étaient facilitées par les réunions régulières organisées par l'entité chargée de la passation des marchés publics afin de clarifier la procédure ou des aspects techniques des appels d'offres ; (iv) les règles concernant les adjudications de marchés « fractionnés²⁰ » facilitaient la répartition des gains de la collusion ; (v) la stabilité des stratégies d'achats rendait la procédure de passation des marchés plus prévisible et plus facile à « contourner » ; et (vi) les obstacles à l'entrée rendaient les nouvelles entrées onéreuses et les règles de transparence (par exemple la divulgation obligatoire du nom et de la soumission du gagnant) facilitaient le contrôle du respect de l'accord.

Pour traiter cette affaire, la CFC s'est principalement appuyée sur deux résultats obtenus lors du filtrage. Premièrement, la moyenne annuelle des marchés remportés ou perdus par les membres du cartel de produits pharmaceutiques était très similaire et a changé uniquement lors de l'entrée d'un nouvel adjudicataire ou du regroupement des soumissions, quelques années plus tard (voir graphiques 2.a et 2.b ci-après²¹). Le prix moyen était nettement plus élevé pendant la période de collusion et pouvait même représenter jusqu'à 72 % de plus que celui pratiqué pendant la période sans collusion.

Graphique 2.a – Médicament 1, prix moyen des offres (janvier 2003-décembre 2007)

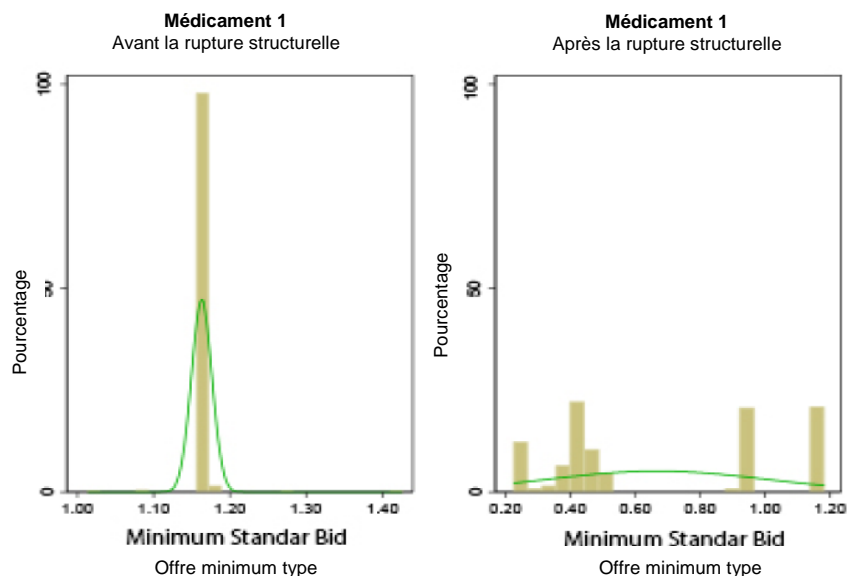


Source : Mena-Labarthe (2012).

fournies par l'IMMS. Dans cette affaire, les filtres « ont permis de concentrer très efficacement les ressources et de recueillir des preuves. » (Mena-Labarthe, 2012)

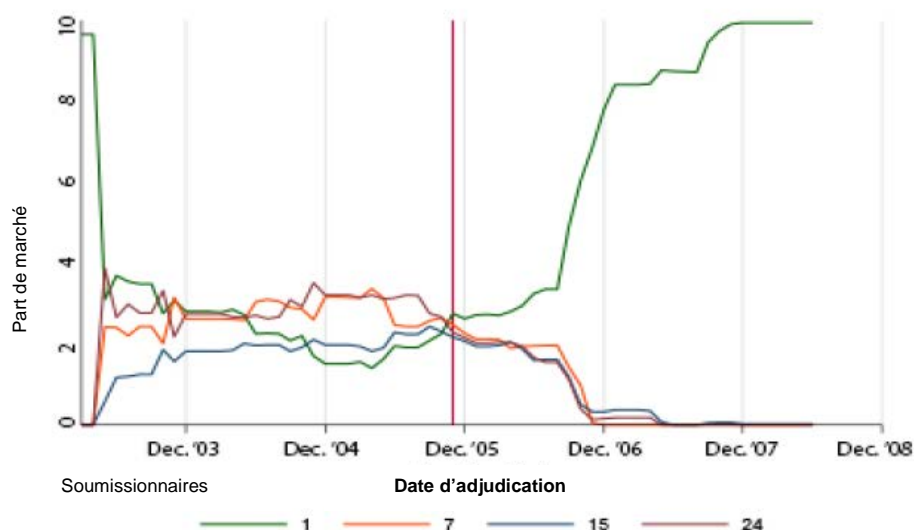
²⁰ Le fournisseur le moins-disant remporte le marché à la condition que le prix soit supérieur ou égal au prix de réserve (c'est-à-dire le prix qu'une personne est disposée à acheter ou vendre un bien donné) fixé par l'entité chargée de la passation du marché. Si l'écart entre les offres les moins-disantes se situait autour de 5 %, la valeur du marché était répartie proportionnellement entre les soumissionnaires concernés (on parle de « fractionnement » du marché).

²¹ Les offres gagnantes et perdantes étaient toujours *identiques*. Seul changeait l'adjudicataire. Après avoir remporté le marché, celui-ci continuait de proposer des offres perdantes jusqu'à ce que son tour revienne (rotation des offres).

Graphique 2.b – Médicament 1, histogramme et estimation de la fonction de densité

Source : Estrada et Vazquez (2013).

L'autre schéma suspect mis en évidence par la CFC concernait le montant des marchés attribués pour chaque médicament recensé (part de marché de chaque soumissionnaire dans ce marché public). Grâce au filtre, on a constaté que les marchés étaient concentrés entre les compagnies pharmaceutiques parties à l'entente et que dans certains cas, la portion du marché obtenue par chacune était presque identique. Pendant la durée de l'entente, les parts de marché des participants ont rapidement convergé dans le temps jusqu'à ce qu'une rupture structurelle survienne, et ont ensuite commencé à évoluer différemment (voir graphique 2.c ci-dessous.)

Graphique 2.c – Insuline, parts de marché accumulées²²

Source : Estrada et Vazquez (2013)

²²

La ligne verticale correspond à la date de la possible rupture structurelle.

2.2 Corée²³

En 2006, la Corée a organisé un programme de détection des soumissions concertées au moyen de filtres. Le système d'analyse des indicateurs de soumissions concertées (*Bid Rigging Indicator Analysis System* (BRIAS)) réalise automatiquement une analyse statistique des indicateurs de soumissions concertées en se fondant sur des données concernant les appels d'offres publics transmises par voie électronique par les institutions publiques à l'autorité coréenne de la concurrence, la KFTC (*Korea Fair Trade Commission*). Ce système calcule la probabilité de soumissions concertées en affectant des coefficients de pondération à différents indicateurs (par exemple, la probabilité de remporter un marché, le nombre de soumissionnaires, le prix des offres, les méthodes de mise en concurrence, etc.) Depuis début 2006, la KFTC utilise ce système principalement pour mieux détecter les soumissions concertées grâce au contrôle automatique des appels d'offres publics. Le système s'est certes révélé très efficace pour la détection des ententes, mais pourrait également contribuer à leur dissuasion en général : en effet, il dissuade les entreprises de participer à des soumissions concertées en signalant au marché que la KFTC filtre chaque soumission à un appel d'offres public. Chaque mois, le système attire l'attention, en moyenne, sur plus de 80 affaires nécessitant un examen approfondi de la part du personnel de la KFTC.

Avant la création du système BRIAS, l'autorité coréenne de la concurrence demandait aux organismes publics de lui communiquer des informations sur les marchés dépassant un certain seuil afin de pouvoir enquêter sur de possibles soumissions concertées. Ces informations étaient toutefois communiquées la plupart du temps par écrit, ce qui rendait physiquement impossible leur analyse poussée par la KFTC. Depuis 2000, de nombreuses institutions publiques ont adopté des systèmes de passation dématérialisée de marchés publics et la Corée a mis au point une méthode plus efficace pour contrôler les appels d'offres publics. Grâce aux plateformes de dématérialisation des marchés publics, la KFTC peut recevoir directement les informations (et les documents) concernant les soumissions que lui font parvenir par Internet les services de passation des marchés publics pour qu'elle procède ensuite au filtrage automatique des soumissions concertées. La KFTC applique depuis 2006 le système de filtrage BRIAS aux appels d'offres du Service des approvisionnements publics, le plus important du genre en Corée. En 2007, l'application du système a été étendue aux appels d'offres des quatre grandes entreprises d'État (la *Korea Electric Power Corporation*, la *Korea Land and Housing Corporation*, la *Korea Expressway Corporation* et la *Korea Water Resources Corporation*). Aujourd'hui 332 organismes de passation de marchés publics, notamment des services de l'administration centrale, des administrations locales et des entreprises publiques, participent au système BRIAS.

²³

Les recherches effectuées pour les besoins de la présente section, ainsi que sa rédaction, ont été réalisées avec l'assistance de Sunmi Lee, en détachement de la *Korea Fair Trade Commission* auprès de la Division de la concurrence de l'OCDE.

Encadré 2.b – Comment le système BRIAS fonctionne-t-il ?

Le système BRIAS fonctionne en trois étapes, depuis la collecte et la saisie de données jusqu'à la production des résultats.

- La première étape consiste à réunir toutes les données concernant les soumissions, de même que les informations sur les marchés publics à grande échelle adjugés par les administrations centrale et locales²⁴. La totalité des données et informations sont réunies automatiquement dans les 30 jours suivant l'adjudication.
- La deuxième étape consiste en l'analyse des données et informations reçues et en la production automatique de notes sur la probabilité de soumissions concertées en évaluant chaque facteur pertinent pour l'analyse (c'est-à-dire les taux de soumissions gagnantes, le nombre de soumissionnaires, la méthode de mise en concurrence, le nombre de prix de soumission situés au-dessus du prix estimé, et l'écart entre l'offre de l'adjudicataire et celles des soumissionnaires classés deuxième et troisième). Un coefficient de pondération est affecté à chacun de ces facteurs. Les notes de chaque élément de l'évaluation sont ensuite additionnées.
- Lors de la troisième étape, les marchés sont filtrés par le système BRIAS en fonction de critères de recherche tels que le nom de l'adjudicataire ou les marchés ayant obtenu une note similaire (90 ou 85) afin d'établir la probabilité de soumissions concertées.

Pour mettre au point ce système et définir les critères de détection de possibles soumissions concertées, la KFTC s'est inspirée de son expérience en matière de mise en œuvre de la législation sur la concurrence et a pris comme repères des signaux d'alerte prédéfinis. Sur la base de ces marqueurs, le système a été conçu pour attribuer une note plus élevée lorsque (i) le taux de marchés remportés par une entreprise est élevé ; (ii) le nombre de soumissionnaires est faible ; (iii) plusieurs soumissionnaires ont soumis une offre supérieure au prix estimé ; (iv) des procédures d'adjudication non concurrentielles sont utilisées ; et (v) il existe un écart important entre la soumission retenue et les autres soumissions. Le système BRIAS n'est toutefois efficace que si la pondération est correctement équilibrée. Par exemple, dans l'affaire de soumissions concertées pour le projet de construction résidentielle SeongNam·Pangyeo, le système BRIAS n'aurait pas pu attirer l'attention sur une possible collusion parce qu'il est conçu pour attribuer une note élevée si le nombre de soumissionnaires était inférieur à dix. Dans cette affaire, le nombre de soumissionnaires était supérieur à dix et le système n'a pas déclenché l'alerte qui aurait permis à la KFTC de mener une enquête approfondie.

Dernièrement, le système BRIAS a produit des résultats encourageants. Les enquêteurs de la KFTC qui analysent la base de données BRIAS ont soupçonné une manipulation des soumissions portant sur l'agrandissement de la ligne 7 du métro de Séoul. Outre le fait que la note attribuée aux offres par le système étaient élevées, les enquêteurs ont observé que les six entreprises ayant remporté chacune une des six parties du projet avaient remporté 27 des 33 appels d'offres lancés par les municipalités de Séoul et d'Incheon entre 2003 et 2005 pour des travaux de conception et de construction d'une ligne de chemin de fer/de métro. Les enquêteurs ont également constaté que les offres retenues étaient plus élevées que prévu ; que seules deux ou trois entreprises avaient soumissionné pour chacune des différentes parties du projet ; enfin, qu'à l'exception des six entreprises retenues, les soumissionnaires n'avaient ni la capacité ni l'expérience voulues pour réaliser la totalité de ce type de projet de manière autonome. En se fondant sur ces éléments, la KFTC a mené des perquisitions dans les bureaux des entreprises suspectes et a saisi des documents incriminants.

²⁴

Informations concernant les soumissions pour des projets de travaux publics d'un montant supérieur à 5 millions USD ou des achats de produits ou de services d'un montant supérieur à 500 000 USD. Sont également envoyées au système BRIAS, par le biais du système de marchés publics dématérialisé, les données et informations concernant les points suivants : 1) organisme chargé de la passation des marchés publics ; 2) type et méthode d'adjudication 3) date et contenu de l'appel d'offres ; 4) coût estimé, coût attendu et ratio offre-coût ; 5) nombre de soumissionnaires ; 6) documents de soumission de chaque entreprise participante ; 7) détails concernant l'adjudicataire ; 8) prix d'adjudication ; 9) nombre d'entreprises non retenues ; et 10) nombre d'augmentations des coûts attendues.

2.3 Italie

L'Italie n'a encore jamais utilisé de filtres d'ententes en vue, éventuellement, de confier à l'autorité italienne de la concurrence (l'AGCM) le soin de mener des enquêtes sur les affaires suspectes. En 2006, l'AGCM a toutefois éprouvé l'efficacité du filtre d'écart de prix proposé par Abrantes-Metz et ses collaborateurs²⁵ sur deux marchés ayant déjà été affectés par des ententes, dans le cadre d'une étude détaillée réalisée par Esposito et Ferrero (deux fonctionnaires de l'AGCM²⁶). Ceux-ci vérifient l'efficacité du filtre d'écart de prix afin de déterminer si l'AGCM aurait pu détecter deux affaires bien médiatisées survenues en Italie (une entente sur les prix de l'essence et du gazole et une entente sur les prix des aliments pour bébés vendus en pharmacie) si elle avait appliqué *ex ante* un filtre d'écart de prix. À la question de savoir si un tel filtre aurait permis de déterminer correctement les personnes impliquées dans l'entente et la durée de leur participation, Esposito et Ferrero répondent par l'affirmative : le filtre d'écart de prix aurait en effet permis de détecter les deux ententes avant que l'AGCM ne puisse le faire par d'autres moyens²⁷.

Pour ce qui concerne l'entente sur les prix de vente de gazole au détail, Esposito et Ferrero font une étude comparative, à l'échelle de l'UE, de l'instabilité des prix sur divers marchés européens pendant différentes périodes. Ils concluent que l'instabilité des prix de l'essence et autres carburants en Italie est moindre que sur les autres marchés européens. La comparaison internationale des niveaux de prix moyens aboutit à un résultat similaire. En Italie, les prix moyens (c'est-à-dire net de taxes) de l'essence et du gazole figuraient parmi les plus élevés d'Europe, ce qui pouvait correspondre à un scénario d'entente. Dans leur étude, Esposito et Ferrero appliquent également le filtre d'écart de prix aux marchés de l'hygiène personnelle et des aliments pour bébés, qui s'étaient déjà signalés par le fait que l'AGCM avait prononcé une amende à l'encontre de l'association professionnelle des pharmaciens pour restriction de la concurrence dans le domaine des ventes en officine²⁸. Les auteurs comparent les prix des produits vendus en officine et ceux des produits vendus en supermarché. Ils constatent que les prix des produits vendus en supermarché sont systématiquement inférieurs à ceux des produits vendus en officine. En outre, les prix des produits vendus en officine sont plus stables.

Pour conclure, les auteurs vantent l'efficacité du filtre d'écart de prix pour détecter les possibles affaires de collusion. Ils expliquent notamment que cette méthode : (i) est intuitive et facile à mettre en œuvre car elle n'utilise que des données (agrégées) sur les prix et non des données sur les coûts, plus

²⁵ Abrantes-Metz, Froeb, Geweke et Taylor (2006). Pour un examen de cette question, voir également l'annexe 1, section 1.

²⁶ Esposito et Ferrero (2006).

²⁷ L'autorité australienne de la concurrence a réalisé une étude similaire, à savoir une analyse des prix de détail de l'essence au regard des prix pratiqués par l'UE-15. Cette étude montre que les résultats obtenus avec un filtre d'écart sont fonction de la méthode appliquée (écart entre les évolutions de prix ou coefficient de variation) et le type de prix retenus (prix bruts ou prix nets). En appliquant toutes les combinaisons possibles, l'autorité australienne de la concurrence a obtenu des résultats partiellement contradictoires, par exemple pour ce qui est de la Finlande : la variation est faible lorsque l'on utilise le coefficient de variation et importante lorsque l'on utilise l'écart entre les évolutions de prix. L'autorité australienne de la concurrence a donc conclu que des recherches théoriques plus poussées s'imposaient avant qu'il soit possible d'appliquer ces méthodes avec succès aux marchés australiens de l'essence. Voir l'étude de Sharma et Kaltenbrunner (2008) décrite par Laitenberg et Huschelrath (2011).

²⁸ L'association avait adopté des décisions consistant à (i) restreindre les pratiques de remises décidées de façon indépendante ; (ii) recommander des barèmes de prix de vente ; (iii) créer une commission chargée de contrôler les prix pratiqués dans les autres circuits de distribution et définir le barème des prix recommandé ; (iv) inviter les membres à se conformer aux barèmes des prix des fabricants ; et (v) limiter les activités publicitaires des membres.

difficiles à réunir ; (ii) s'appuie sur des calculs de données sur une base quotidienne (écart de prix) ; (iii) repose sur des bases théoriques et empiriques ; (iv) serait efficace même si les entreprises savent que l'autorité de la concurrence les utilise pour repérer les ententes car indépendamment du risque de détection, l'écart entre les prix serait de toute façon faible en raison du comportement des membres de l'entente.

2.4 *Brésil*

Afin de traiter le nombre croissant de plaintes concernant un comportement anticoncurrentiel allégué sur le marché de détail du gaz²⁹, le Système brésilien de défense de la concurrence (SBDC) a mis au point des filtres qui permettent de différencier les affaires nécessitant une enquête approfondie des plaintes non recevables parce qu'infondées³⁰. Les plaintes adressées au SBDC étaient motivées par des préoccupations communes exprimées par les consommateurs : (i) similarité des prix de détail ; (ii) ajustements quasi simultanés des prix de détail ou ajustements effectués à intervalles rapprochés ; et (iii) prix ou marges observés dans une ville donnée supérieurs à ceux de villes voisines. Le SBDC était confronté à un choix difficile car même si ces faits indiquaient peut-être l'existence d'une entente, on pouvait attendre un résultat similaire (même en l'absence de collusion explicite) sur des marchés caractérisés par la concentration de l'offre, un degré élevé de transparence des prix et d'homogénéité des produits, et des relations verticales étendues. Ces caractéristiques sont précisément celles que l'on retrouve sur les marchés de détail des carburants au Brésil ainsi que dans la plupart des pays dans le monde³¹.

Pour traiter les nombreuses plaintes qu'il reçoit chaque année, le SBDC a décidé d'effectuer un premier tri fondé uniquement sur des éléments de preuve de nature économique avant de décider d'y donner suite et d'ouvrir ou non une enquête formelle. La méthode de filtrage utilisée par le SBDC comporte trois tests statistiques³² : (i) l'analyse de l'évolution des marges bénéficiaires réalisées sur les ventes au détail dans la ville où l'entente alléguée a cours ; (ii) l'analyse de la corrélation entre les marges bénéficiaires des ventes au détail et le coefficient de variation (niveau de dispersion des prix) pour la ville en question ; et (iii) l'analyse de la corrélation entre la marge bénéficiaire des ventes au détail dans la ville considérée et la marge bénéficiaire des ventes au détail dans l'État concerné. On présume que les trois tests sont effectués et que l'analyse peut aboutir à deux résultats opposés : (i) probabilité d'entente nulle (c'est-à-dire qu'on observe une réduction des marges bénéficiaires des ventes au détail de temps à autre ; une association positive entre les augmentations des marges et la variabilité des prix ; et des marges bénéficiaires qui évoluent de manière similaire à la moyenne enregistrée dans l'État concerné ; ou (ii) probabilité d'entente (c'est-à-dire que l'on observe une augmentation des marges bénéficiaires des ventes au détail dans le temps ; une association négative entre les marges bénéficiaires des ventes au détail et la variabilité des prix ; enfin, les marges bénéficiaires des ventes au détail évoluent très différemment ou connaissent une évolution qui n'est pas similaire à la moyenne calculée pour l'État.

Le filtre est rapidement devenu un outil efficace d'analyse des plaintes et, éventuellement, de rejet des plaintes non fondées. Dans un nombre restreint d'affaires, les résultats du programme de filtrage ont permis d'attirer l'attention sur un possible comportement d'entente. Le graphique 2.d ci-dessous, par

²⁹ Selon Ragazzo (2012), environ 23 % des affaires en instance en 2010 concernaient des ententes alléguées sur le marché de détail de l'essence ; de plus, sur les 370 procédures administratives transmises au CADE entre 2007 et 2009 en vue d'une décision définitive, 56 (soit 15 %) concernaient le même marché.

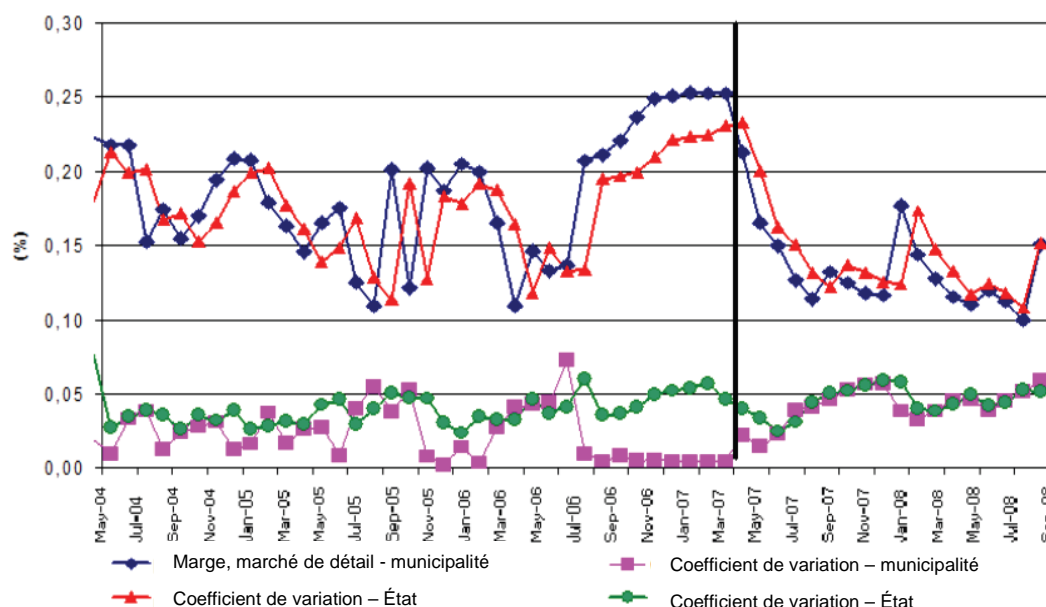
³⁰ Ragazzo (2012).

³¹ OCDE (2013), à paraître.

³² Le filtre peut être appliqué efficacement parce que l'on dispose d'une grande quantité de données sur le marché de détail des carburants. Les prix et marges moyens pour les consommateurs (ainsi que les prix moyens pratiqués par les grossistes) sont divulgués par l'Agence nationale du pétrole, un organisme de réglementation qui contrôle, réunit et diffuse des données concernant de nombreuses villes.

exemple, montre les résultats du filtrage réalisé dans le cadre d'une enquête sur le marché de détail du gaz de la ville de João Pessoa, dans l'État de Paraíba³³.

**Graphique 2.d – Marge bénéficiaire sur le marché de détail du carburant
(municipalité de João Pessoa, État de Paraíba, Brésil)**



Source : Ragazzo (2012).

3. Exemples de filtres utilisés par les autorités de réglementation et d'autres organismes de surveillance

Certains filtres ont été élaborés et mis en œuvre pour détecter de possibles comportements anticoncurrentiels, mais aussi une grande diversité de comportements illicites liés aux manipulations des cours et des indices sur les marchés d'actions et de produits de base ; à la gestion des recettes ; au fait d'antidater l'attribution des options de souscription d'actions ; aux opérations d'initiés ; à la fraude fiscale ; et à différents types de manipulations comptables. De nombreux organismes de réglementation et de surveillance ont régulièrement recours à des méthodes de filtrage dans l'accomplissement de leurs responsabilités en matière d'application et de contrôle, grâce également au fait qu'ils disposent d'une grande quantité de données. Tel est souvent le cas des autorités de réglementation et de surveillance des marchés financiers s'agissant de la détection des infractions financières et des enquêtes les concernant³⁴

³³ Le graphique illustre l'évolution des marges bénéficiaires des ventes au détail après la descente effectuée en mai 2007 par les autorités brésiliennes de la concurrence et la police fédérale dans les bureaux des entreprises faisant l'objet d'une enquête.

³⁴ C'est également l'application de filtres qui a d'abord attiré l'attention sur le système de fraude de Bernard Madoff en 1999, et notamment sur le fait que les rendements étaient toujours supérieurs à tous les rendements observables dans d'autres catégories d'actifs ; qu'ils étaient presque parfaitement réguliers ; enfin, qu'ils ne réagissaient pas aux conditions du marché, non plus qu'aux conditions économiques (voir Abrantes-Metz, 2013). Cette fraude (appelée système de Ponzi) consistait à rémunérer les investisseurs en utilisant leurs fonds ou ceux des investisseurs suivants plutôt que les bénéfices réalisés par la personne ou l'organisation qui administrait l'activité. Dans ce système, les nouveaux investisseurs sont attirés par la perspective de rendements à court terme anormalement élevés (par rapport à ceux que procurent d'autres investissements comparables), ou de rendements inhabituellement réguliers.

ainsi que des organismes de contrôle du fonctionnement des marchés de titres et de produits de base³⁵. Dans de nombreux pays, la banque centrale, le Trésor et l'administration fiscale ont régulièrement recours à des filtres dans le cadre de leurs activités de contrôle et de surveillance³⁶.

3.1 Affaires survenues au milieu des années 2000 concernant les options sur actions antidatées ou octroyées avant l'annonce de bonnes nouvelles pour l'entreprise

Au milieu et à la fin des années 2000, plusieurs affaires liées à des manipulations présumées d'options sur actions - options antidatées³⁷ ou octroyées immédiatement avant l'annonce d'une bonne nouvelle concernant l'entreprise³⁸ - ont été engagées aux États-Unis. Leur déclenchement a été rendu possible grâce à un filtre empirique d'options sur actions antidatées³⁹. Ce filtre était fondé sur l'observation des rendements anormaux des actions, généralement négatifs avant l'octroi d'options aux dirigeants, et positifs après⁴⁰. Les profils de rendements anormaux ont été interprétés comme étant imputables à l'octroi d'options sur actions antidatées. Les preuves présentées ont conduit l'autorité américaine des marchés financiers (la *U.S. Securities and Exchange Commission* (SEC)) à exiger que les octrois d'options sur actions soient déclarés dans un délai de deux jours ouvrables. Cela a mis un terme aux rendements anormaux des actions, qui ont même complètement cessé dans le cas des octrois déclarés dans un délai d'un jour. Les octrois d'options sur actions déclarés dans des délais plus longs ont continué de produire des rendements anormaux dont l'ampleur était habituellement d'autant plus grande que le délai de déclaration était long.

L'application de ce type de filtre au niveau des entreprises a permis de détecter plusieurs affaires d'options sur actions antidatées ou octroyées avant l'annonce de bonnes nouvelles. Ces affaires ont déclenché des enquêtes des autorités de réglementation et des recours privés⁴¹. Par exemple, en 2006,

³⁵ Aux États-Unis, il s'agit par exemple de la *U.S. Securities and Exchange Commission* et de la *U.S. Commodities Futures Trading Commission*.

³⁶ Par exemple, en 2006, le ministère de la Justice des États-Unis a mis en place un groupe de travail (le *National Procurement Fraud Task Force*), qui est chargé d'assurer la prévention, la détection précoce et l'ouverture de poursuites dans les affaires de fraude affectant la passation des marchés publics de l'administration fédérale. Ce groupe de travail centre ses activités sur la tarification erronée, la fraude aux subventions, la surfacturation de la main-d'œuvre et les soumissions concertées. (Voir <http://www.usdoj.gov/criminal/nptf/>). Le ministère de la Justice des États-Unis a également déployé des efforts actifs en partenariat avec des organismes locaux pour protéger les fonds de relance prévus par l'*American Recovery and Reinvestment Act* de 2009 contre la fraude, le gaspillage et les abus. Par le passé, le ministère américain de la Justice a tenté de mettre en place un programme de filtrage systématique des bases de données sur les soumissions aux appels d'offres publics dont l'objet était de rechercher les soumissions identiques, afin de détecter et de dissuader la collusion dans les marchés. Ce programme a donné peu de résultats et été abandonné au bout de six ans. (Voir l'exposé présenté par les États-Unis à l'occasion de la présente table ronde [DAF/COMP/WD(2013)117] ; voir également l'examen réalisé par Abrantes-Metz et Bajari (2012).)

³⁷ L'octroi d'options sur actions antidatées aux salariés consiste à leur attribuer des options dont le prix d'exercice est fixé en référence à une date passée.

³⁸ Cette pratique (aussi désignée « *spring-loading* ») consiste à octroyer des options sur actions avant l'annonce de nouvelles favorables pour l'entreprise ou à retarder l'annonce de telles nouvelles jusqu'à ce que l'octroi d'options ait eu lieu.

³⁹ Lie (2005).

⁴⁰ On trouvera une description de ces affaires et du rôle des filtres en tant qu'éléments probants à l'appui de cette allégation dans l'étude d'Abrantes-Metz (2010).

⁴¹ Abrantes-Metz (2010) examine le rôle juridique des filtres dans les affaires d'options antidatées et d'attribution d'options avant l'annonce d'une bonne nouvelle.

LAMPERS, un fonds de pension chargé des activités d'administration et d'investissement pour le compte des salariés et des retraités de la Force de police de la Louisiane, a poursuivi la société Countrywide Financial Corporation pour plusieurs affaires alléguées d'annonces de nouvelles favorables avant l'attribution d'options sur actions. La poursuite s'appuyait sur le repérage, par le filtre Lie (un filtre utilisé pour détecter les options antidatées et les annonces de bonnes nouvelles avant l'octroi d'options), de certains jours propices à un possible comportement illicite. Le tribunal a admis l'utilisation de ce filtre et les profils de comportements qu'il a permis de découvrir ont été utilisés comme éléments de preuve de l'utilisation, par les dirigeants de la société Countrywide, d'informations d'initiés pour assurer des rendements anormalement élevés à la suite de l'octroi d'options sur actions.

3.2 *La manipulation du NASDAQ en 1998*

Le filtre élaboré en 1994 par Christie et Schultz pour déceler un système anormal dans lequel les teneurs de marché évitaient d'utiliser les fractions d'un huitième impaires dans les fourchettes internes du NASDAQ⁴² a déclenché une enquête du ministère de la Justice des États-Unis sur un possible comportement illicite sur les marchés financiers américains, ainsi qu'une enquête de la SEC. Le ministère de la Justice présumait que la collusion entre les opérateurs sur l'affichage des cours vendeur et acheteur sur le NASDAQ visait à augmenter, fixer et stabiliser la fourchette interne d'un grand nombre d'actions sur ce marché. La manipulation n'était pas le résultat d'un accord explicite, mais les pratiques des teneurs de marché ont causé un préjudice direct au NASDAQ, aux autres intervenants sur le marché et aux investisseurs.

Selon le rapport sur le NASD et le NASDAQ établi par la SEC conformément à l'article 21(a) de la *Securities Exchange Act* de 1934, « l'adhésion à l'entente sur les prix a maintes fois affecté les prix déterminés par les cotations sur le NASDAQ et, partant, l'objectivité et l'exactitude des informations sur les cotations diffusées sur le marché, et a entravé l'exécution économiquement efficace des transactions. Cette entente a aussi affecté la capacité des investisseurs à déterminer le meilleur marché pour effectuer leurs opérations, accru le coût des transactions et engendré une discrimination injuste entre les différentes catégories d'intervenants sur le marché. Les activités non divulguées des teneurs de marché qui coordonnaient les cotations de prix, les opérations sur titres ainsi que le choix du moment et la séquence des déclarations sur les opérations ont trompé les intervenants et les clients, faussé les informations sur les cotations et les prix auxquels les opérateurs étaient effectivement disposés à acheter et à vendre, et réduit la capacité des investisseurs et des autres intervenants sur le marché à obtenir des prix concurrentiels. Les intérêts des intervenants sur le marché eu égard à l'exactitude, à l'objectivité et à la fiabilité de la fixation des prix, n'ont pas été servis. De plus, les teneurs de marché n'ont pas respecté leurs obligations à l'égard de leurs clients en échangeant secrètement des informations sur ces derniers et en s'abstenant à maintes reprises de respecter les cotations ou d'annoncer les transactions avec rapidité et précision⁴³.

3.2 *La manipulation des taux du LIBOR en 2008*

Le ministère américain de la Justice, l'autorité américaine des marchés financiers (SEC) et l'agence américaine des marchés à terme de matières premières (*Commodities Futures Trading Commission* (CFTC)) enquêtent sur la possible manipulation des taux LIBOR en dollars américains par des grandes banques⁴⁴. D'autres autorités de réglementation partout dans le monde leur ont emboîté le pas et examinent

⁴² Voir annexe 1, section 4.

⁴³ Document consultable à l'adresse <http://www.sec.gov/litigation/investreport/nd21a-report.txt>.

⁴⁴ Aux États-Unis, la CFTC a ouvert une enquête sur la manipulation alléguée des taux du LIBOR en 2008 ; en 2011, l'une des grandes banques qui faisaient l'objet d'une enquête a décidé de participer au programme d'immunité du ministère américain de la Justice.

la possible manipulation des taux du LIBOR dans d'autres devises et de taux de référence similaires (par exemple l'EURIBOR en Europe et le TIBOR au Japon). Ces enquêtes ont été déclenchées à la suite de l'application de filtres empiriques par le *Wall Street Journal* en avril et mai 2008 ainsi que par l'étude réalisée par Abrantes-Metz, Kraten, Metz et Seow en août 2008⁴⁵. Tous les filtres appliqués ont attiré l'attention sur des caractéristiques suspectes et inhabituelles dans les cotations soumises par les banques qui participaient à la fixation du LIBOR⁴⁶.

Encadré 2.c - Le *London Inter-Bank Offered Rate* (LIBOR)

Créé en 1986, le taux interbancaire pratiqué à Londres, ou LIBOR (*London Inter-Bank Offered Rate*) est le taux d'intérêt moyen auquel certaines grandes banques établies à Londres s'accorderaient des prêts entre elles. Avec l'EURIBOR, le LIBOR est la référence principale pour les taux d'intérêt à court terme partout dans le monde et pour plusieurs instruments financiers représentant littéralement des milliers de milliards de dollars de transactions⁴⁷. Le LIBOR est le taux de référence pour les produits dérivés mais aussi pour de nombreux produits de prêts à la consommation comme les crédits hypothécaires, les cartes de crédit et les prêts étudiants.

Le LIBOR est calculé pour dix devises et est publié quotidiennement par la *British Banking Association* (BBA), d'après les cotations d'un panel de 16 banques, pour chaque devise sélectionnée par la BBA. Chaque jour ouvrable, les banques participantes doivent indiquer, pour chaque devise, quelle serait leur réponse à la question : « à quel taux pourriez-vous emprunter des fonds si vous deviez le faire en demandant puis en acceptant des offres interbancaires sur un marché de taille raisonnable, juste avant 11 heures⁴⁸ ? » Les chiffres déclarés sont classés dans l'ordre descendant et les taux quotidiens sont obtenus en calculant la moyenne arithmétique des deuxième et troisième quartiles pour chaque devise et échéance⁴⁹.

Comme les médias en ont largement fait état, dans différents pays, de nombreuses autorités chargées de l'application de la législation, notamment en matière de concurrence, mènent en ce moment des enquêtes sur la présumée manipulation du LIBOR par les banques participant au calcul de cet indice. On estime que les enquêtes sur le LIBOR et les recours privés sont la principale illustration de l'utilisation de filtres en matière de détection de possibles manipulations ou complots⁵⁰. Depuis l'ouverture des enquêtes, certaines banques ont accepté de payer des millions de dollars d'amendes ainsi que des dommages-intérêts dans le cadre de poursuites au civil. La manipulation a de toute évidence consisté à sous-évaluer le LIBOR pour dissimuler les difficultés financières de certaines banques⁵¹. Comme l'a indiqué le *Wall Street*

⁴⁵ La première étude de ces auteurs a ultérieurement été affinée et publiée en 2012 (Abrantes-Metz, Kraten, Metz et Seow, 2012).

⁴⁶ Abrantes-Metz, Kraten, Metz et Seow (2012).

⁴⁷ *In LIBOR-Based Financial Instruments Antitrust Litigation*, 2013 U.S. Dist. LEXIS 45909, 31.

⁴⁸ *In LIBOR-Based Financial Instruments Antitrust Litigation*, 2013 U.S. Dist. LEXIS 45909, 29. Les membres de chaque panel répondent à cette question pour quinze échéances différentes (*id.*)

⁴⁹ *In LIBOR-Based Financial Instruments Antitrust Litigation*, 2013 U.S. Dist. LEXIS 45909, 30.

⁵⁰ Selon Abrantes-Metz, « sans filtres, la manipulation des taux du LIBOR n'aurait sans doute jamais été découverte » (Abrantes-Metz (2013)).

⁵¹ Barclays, l'une des banques qui a conclu un règlement avec le ministère américain de la Justice, a convenu de la déclaration suivante : « Les hauts dirigeants de Barclays ont exprimé leur inquiétude concernant la mauvaise publicité. Les responsables du desk des marchés monétaires et du service trésorerie qui ont donné instruction de déclarer un taux faible (les taux déclarés pour le calcul du LIBOR étaient donc plus faibles qu'ils n'auraient dû l'être) voulaient éviter que Barclays n'attire l'attention de manière inexacte et négative sur sa situation financière si elle annonçait des taux supérieurs à ceux des autres banques. Ces responsables ont voulu empêcher les jugements négatifs sur les coûts d'emprunt de Barclays et, de manière

Journal, qui a été le premier à découvrir de possibles manipulations du LIBOR, « certaines banques ne veulent pas faire état des taux d'intérêt élevés qu'elles paient pour des prêts à court terme afin ne pas révéler au marché qu'elles ont désespérément besoin de liquidités. »

3.2.1 Détection de possibles manipulation du LIBOR – Phase I (détection précoce)

En avril 2008, un premier article du *Wall Street Journal* évoquait avec inquiétude le fait que les taux LIBOR « perdaient en fiabilité⁵² ». Cet article s'appuyait principalement sur différentes sources bancaires. Cependant, dans un deuxième article publié en mai de la même année, une analyse économique montrait que la fixation du taux LIBOR avait peut-être été entachée de manipulations : jusqu'en janvier 2008, « le coût de l'assurance en cas de défaillance des banques et le taux du LIBOR affichaient une progression très similaire – l'un comme l'autre ont augmenté lorsque les marchés ont cru que les banques étaient en difficulté. » Cependant, « lorsque les craintes d'une possible faillite des banques se sont intensifiées, ces deux mesures ont commencé à diverger et les taux déclarés pour le LIBOR n'ont pas rendu compte de l'augmentation des coûts d'assurance en cas de non-remboursement des banques [...] »⁵³. » Le *Wall Street Journal* notait également : « au cours des quatre premiers mois [de 2008], les taux d'emprunt à trois mois déclarés par les 16 banques du panel LIBOR ont conservé en moyenne un écart de seulement 0.06 point – ce qui est très peu au regard du taux LIBOR moyen de 3.18 % sur le dollar américain. »

L'analyse du *Wall Street Journal* consiste essentiellement à associer deux méthodes générales de filtrage examinées dans les ouvrages économiques : (i) comparaison de la performance et des résultats observables du marché que l'on présume être affecté par des manipulations (en l'occurrence, le LIBOR) à l'aune d'un point de référence approprié (en l'occurrence, le marché de l'assurance en cas de défaillance des banques) et dans le temps, en choisissant un point de repère comparable⁵⁴ ; et (ii) détecter les « ruptures structurelles » dans le comportement des banques (autour de janvier 2008⁵⁵). L'analyse s'intéresse aussi aux taux effectivement soumis par les banques qui, selon le professeur Duffi (l'un des spécialistes indépendants ayant examiné la méthode suivie par le *Wall Street Journal*) étaient « trop similaires pour être crédibles ».

3.2.2 Détection de probables manipulations du LIBOR – Phase II (application de filtres)

Les soupçons émis dans les articles du *Wall Street Journal* ont incité de nombreux chercheurs à appliquer différentes techniques de filtrage afin de vérifier la probabilité d'une manipulation de l'indice du

plus générale, sur sa situation financière, parce qu'ils estimaient que de tels jugements seraient injustifiés et que les autres banques du panel déclareraient des taux LIBOR pour le dollar peu réalistes parce que trop bas. Ils ne souhaitent pas que l'on pense, à tort selon eux, que Barclays était en moins bonne situation financière que ses paires. Par conséquent, Barclays a agi de manière fautive afin d'atténuer le risque qu'aurait entraîné pour sa réputation le fait de soumettre des taux LIBOR plus élevés. En d'autres termes, comme l'ont indiqué les employés de Barclays dans leurs communications internes, la stratégie de communication de taux LIBOR sous-estimés pour le dollar avait pour but de maintenir Barclays hors de portée d'éventuelles attaques. » (exposé des faits contenu dans l'accord concernant l'absence de poursuites daté du 26 juin 2012 entre la Division des affaires criminelles, Section des fraudes, du ministère de la Justice des États-Unis, Barclays Bank PLC (<http://www.justice.gov/iso/opa/resources/9312012710173426365941.pdf>), par. 40.

⁵² Carrick Mollenkamp, *Bankers Cast Doubt on Key Rate Amid Crisis*, Wall Street Journal, le 16 avril 2008.

⁵³ Carrick Mollenkamp et Mark Whitehouse, *Study Casts Doubt on Key Rate*, Wall Street Journal, le 29 mai 2008.

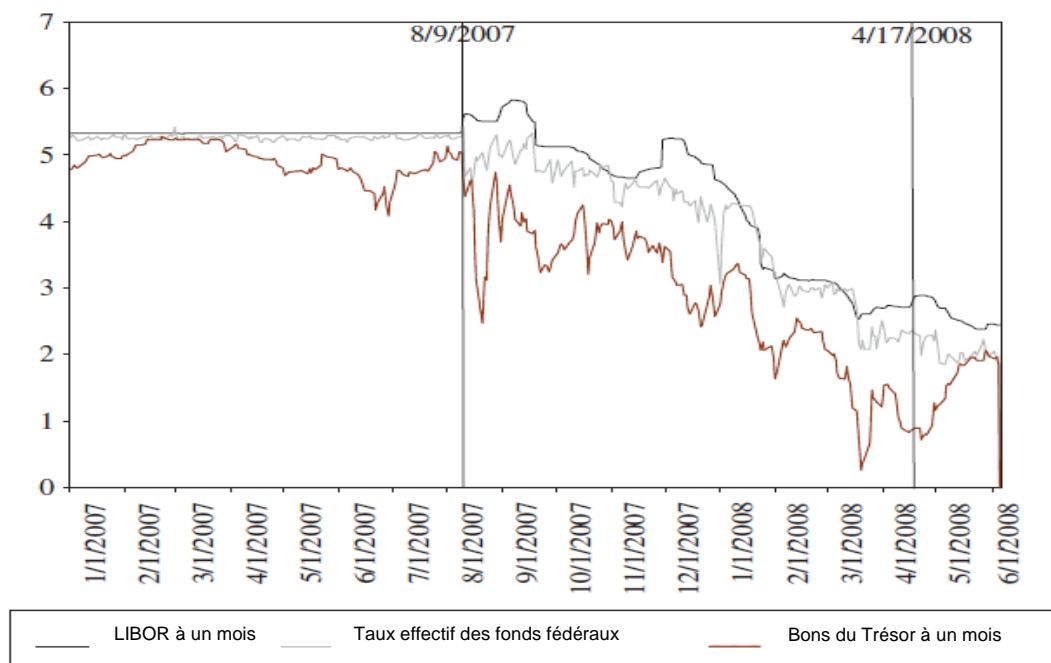
⁵⁴ Par exemple, ABA (2010).

⁵⁵ Harrington (2008).

LIBOR par les banques⁵⁶. Ces chercheurs comparent le taux LIBOR à d'autres taux d'emprunt à court terme et les cotations des différentes banques à des mesures de leurs coûts respectifs et analysent l'écart, au cours d'un même jour, entre les cotations des différentes banques. Leurs analyses portent sur la période comprise entre janvier 2007 et mai 2008 et mettent en exergue deux dates importantes, le 9 août 2007 (parution dans les médias d'informations concernant la propagation de la crise financière et l'intervention des banques centrales) et le 17 avril 2008 (annonce de l'intention de la BBA d'enquêter sur une possible manipulation du LIBOR) qui pourraient servir de dates de rupture structurelle dans les décisions des banques en matière de cotations⁵⁷.

L'application des filtres permet dans un premier temps de dégager deux caractéristiques importantes (voir graphique 2.e ci-après) à partir de l'observation du LIBOR à un mois pendant la période comprise entre janvier 2007 et fin mai 2008, ainsi que d'autres indices de référence comme le taux effectif des fonds fédéraux et les bons du Trésor à un mois : (i) le taux quasiment constant du LIBOR pendant au moins sept mois et demi et (ii) les schémas d'instabilité différents, que rien ne semble pourtant justifier, du LIBOR et des taux de référence comme les bons du Trésor et le taux effectif des fonds fédéraux.

Graphique 2.e - LIBOR à un mois, taux effectif des fonds fédéraux et bons du Trésor à un mois



Source : Abrantes-Metz et Bajari (2011)

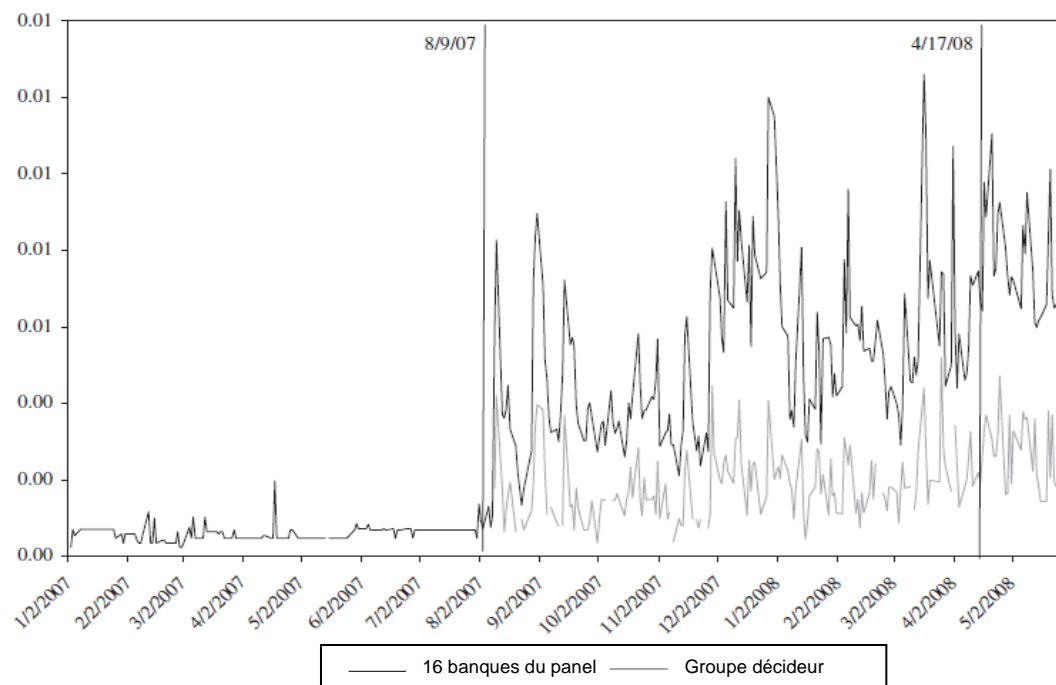
Dans un deuxième temps, l'application des filtres montre, s'agissant du LIBOR, la corrélation totale entre les différentes cotations soumises par la majorité des banques sous pli cacheté ... L'analyse des différentes cotations soumises par les banques et de l'écart, au cours d'un même jour, entre les cotations, donne certains résultats manifestement anormaux : les cotations sont très similaires pendant la période qui précède le 9 août 2007 et le sont nettement moins par la suite ; en outre, « le nombre élevé de cotations identiques » semble indiquer que « la grande majorité des banques se sont rapprochées du groupe décideur dans plus de 95 % des cas » et que « la composition du groupe décideur était relativement

⁵⁶ Abrantes-Metz, Kraten, Metz et Seow (2012) ; Abrantes-Metz et Metz (2012) ; Abrantes-Metz, Bajari et Judge (2011).

⁵⁷ Abrantes-Metz, Kraten, Metz et Seow (2012).

constante » pendant la période en question. La situation diffère sensiblement lorsque l'on examine les périodes suivantes, comme l'illustre le tableau 2.f ci-après⁵⁸.

Graphique 2.f - LIBOR à un mois : coefficient de variation transversal des cotations des banques



Source : Abrantes-Metz, Kraten, Metz et Seow (2012).

Pour montrer que ces résultats résultaient bien d'une manipulation et non d'une forme quelconque de parallélismes tacites entre les banques, Abrantes-Metz et Metz analysent les cotations des différentes banques pendant des périodes particulières⁵⁹. Les tableaux 2.g et 2.h ci-dessous indiquent les différentes cotations pour les premiers jours d'août 2006 et les valeurs spécifiques qui ont déterminé le LIBOR pour ces jours ainsi que le nombre de banques qui ont soumis la même cotation.

Tableau 2.g – Cotations de chaque banque à compter de début août 2006

	3 août	4 août	2006 7 août	8 août	9 août
BTMU	5.410	5.430	5.370	5.370	5.330
Bank of America	5.400	5.420	5.380	5.370	5.325
Barclays	5.410	5.420	5.370	5.370	5.340
JPM Chase	5.410	5.420	5.380	5.370	5.330
Citi Bank	5.405	5.420	5.360	5.370	5.330
CSFB	5.405	5.420	5.360	5.370	5.330
Deutsche Bank	5.405	5.415	5.365	5.365	5.325
HBOS	5.410	5.420	5.350	5.370	5.330
HSBC	5.400	5.420	5.370	5.370	5.330
Lloyds	5.410	5.420	5.360	5.370	5.330
Norinchukin	5.410	5.420	5.370	5.370	5.340
Rabobank	5.405	5.415	5.370	5.370	5.330
Royal Bank of Canada	5.405	5.420	5.370	5.368	5.330
Royal Bank of Scotland	5.400	5.420	5.370	5.370	5.330
UBS AG	5.405	5.420	5.370	5.370	5.330
West LB	5.405	5.460	5.360	5.370	5.330

Source : Abrantes-Metz et Metz (2012). Les cotations surlignées en jaune sont celles qui ont été exclues du calcul du LIBOR.

⁵⁸ Abrantes-Metz, Kraten, Metz et Seow (2012).

⁵⁹ Abrantes-Metz et Metz (2012).

Tableau 2.h – Répartition des huit cotations du « milieu »

		2006				
		3 août	4 août	7 août	8 août	9 août
Valeur 1		5.405	5.420	5.360	5.370	5.330
	<i>Nombre</i>	7	12	4	14	12
Valeur 2		5.410		5.365		
		6		1		
Valeur 3				5.370		
				8		

Source : Abrantes-Metz et Metz (2012).

L'examen de ces données montre clairement que les banques annoncent dans une large mesure une cotation identique jour après jour et qu'elles « ne convergent pas vers cette cotation par la force de l'expérience ». Au contraire, elles soumettent une cotation identique (sous pli cacheté !) un certain jour et, le lendemain, soumettent (toujours sous pli cacheté) une cotation tout aussi identique, mais différente de celle de la veille. Les auteurs notent par exemple que le 3 août, sept banques donnent une cotation de 5.405 et six, de 5.410. En revanche, le 4 août, douze banques produisent une cotation de 5.420 – différente de toutes celles qui ont été soumises la veille. Le 7 août, on relève trois valeurs différentes parmi les huit cotations « intermédiaires » à savoir 5.360 (cotation soumise par quatre banques), 5.365 (cotation soumise par une banque) et 5.370 (cotation soumise par huit banques). Cependant, le 8 août, quatorze banques sur seize soumettent une cotation de 5.370. Ce fait a été retenu comme preuve que ces schémas n'étaient pas le fruit d'un accord tacite mais bien d'un accord explicite entre les banques dans le but de manipuler les cotations.

Le dernier résultat intéressant fourni par l'application de filtres à la manipulation du LIBOR provient de la comparaison des primes des contrats d'échange sur le risque de défaut (*credit default swaps* ou CDS) des banques, qui semblent correspondre à la stabilité financière de celles-ci, avec les cotations fournies par chacune pour le calcul du LIBOR, qui peuvent aussi être perçues comme un indicateur du risque des banques⁶⁰. Il ressort que pour certaines banques, contrairement à ce que l'on aurait pu prévoir dans des conditions normales, il existe une corrélation négative entre les cotations fournies pour le calcul du LIBOR et la prime de CDS. En d'autres termes, pour certaines banques, deux indicateurs de risque prennent simultanément des directions opposées. Cela aussi semble indiquer que les taux du LIBOR ont été artificiellement sous-évalués. Dans la même étude, les auteurs observent en outre des variations entre les notations implicites, déduites de données de marché, des émissions obligataires des banques et fournies par Moody's, qui transforment « *certain indicateurs de marché comme les prix obligataires en grille comparable aux notations* ». Étant donné que ces variations laissent supposer que chaque banque présente des degrés de risque différents, « *on ne s'attend pas à ce que les cotations LIBOR annoncées quotidiennement par les banques soient entièrement identiques* » comme cela a été le cas pendant la période qui a précédé le 9 août 2007. Les auteurs ajoutent que bien que l'écart entre les notations implicites (fondées sur des données de marché) des émissions obligataires a augmenté entre janvier et août 2007, tel n'a pas été le cas de l'écart entre les cotations LIBOR données par les banques après le 9 août 2007. En outre, l'évolution spectaculaire de l'écart entre les taux du LIBOR après le 9 août 2007 ne s'explique pas par la légère augmentation de l'écart entre les notations implicites des émissions obligataires réalisées d'après des données de marché. Là encore, deux indicateurs de la solidité des banques semblent se comporter de manière incohérente⁶¹.

⁶⁰ Abrantes-Metz, Kraten, Metz et Seow (2012).

⁶¹ Abrantes-Metz, Kraten, Metz et Seow (2012).

Enfin, le LIBOR a été analysé à la lumière de la loi de Benford⁶². En effet, selon la loi de Benford sur le premier chiffre significatif d'un nombre, « dans de nombreuses suites numériques naturelles, la répartition des premiers chiffres n'est pas uniforme mais suit plutôt une distribution logarithmique faiblement monotone. » Certaines études montrent que cette loi s'applique à un nombre « étonnamment élevé de suites numériques représentant par exemple les populations des villes, l'utilisation de l'électricité et les rendements quotidiens de l'indice Dow-Jones. Les données du marché reflètent des valeurs nominales qui souvent varient peu sur des durées limitées⁶³. » Selon une étude, le premier chiffre du LIBOR ne varie pas énormément, mais les auteurs s'attendaient à ce que le deuxième chiffre et les chiffres suivants varient conformément à la loi de Benford. La répartition des deuxièmes chiffres du LIBOR est assez conforme à la loi de Benford pendant deux décennies et une divergence non négligeable apparaît pendant la majeure partie de la période comprise entre février 2006 et octobre 2008. Devant cette divergence, les auteurs avancent une fois de plus l'idée que le LIBOR a été calculé de façon artificielle.

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⁶² Abrantes-Metz, Villas-Boas et Judge (2011).

⁶³ Voir annexe 1, section 4.

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COMPTE RENDU DE LA DISCUSSION

Par le Secrétariat

M. Frederic Jenny, le Président du Groupe de travail n° 3 ouvre la table ronde intitulée « *Enquêtes d'office relatives aux ententes et utilisation de filtres pour détecter les ententes* » et souhaite la bienvenue à l'ensemble des participants.

Le Président ouvre la discussion en soulignant le grand intérêt de la thématique retenue, puisque les délégations ont soumis 25 contributions exprimant leur point de vue. La lutte contre les ententes est une priorité de toutes les autorités de la concurrence. La plupart d'entre elles utilise des outils réactifs pour détecter les ententes, comme les plaintes émanant de concurrents ou de consommateurs ou les demandes de clémence. Les autorités de la concurrence s'en remettent plus rarement à des outils de détection proactifs ou utilisent des outils comme les filtres comportementaux ou structurels. Il existe différents points de vue sur le fait que le recours à des outils réactifs, que sont notamment les programmes de clémence, est ou non suffisant pour mettre au jour des ententes. Certains pays ont enregistré de bons résultats en utilisant des filtres tandis que pour d'autres, les résultats découlant de ce processus n'ont pas suffi pour obtenir des condamnations ou les preuves d'infractions au droit de la concurrence.

Le Président explique que la discussion s'articulera autour de six grandes thématiques :

- (i) le juste équilibre entre les outils proactifs et les outils réactifs de détection des ententes,
- (ii) l'expérience des différents pays concernant les filtres comportementaux,
- (iii) l'expérience des différents pays concernant les filtres structurels,
- (iv) les difficultés de mise en œuvre des programmes de filtrage des ententes,
- (v) l'utilisation de filtres pour détecter des soumissions concertées,
- (vi) les autres mesures réactives utilisées dont l'efficacité a été avérée.

Avant de céder la parole aux participants, le Président présente les différents experts invités à prendre part à la table ronde : Mme Rosa M. Abrantes-Metz (Global Economics Group, États-Unis), M. Maarten Pieter Schinkel (Université d'Amsterdam) et M. William Kovacic (Université George Washington, États-Unis).

1. Interdépendance entre les outils d'enquête réactifs et proactifs utilisés pour détecter les ententes

Le Président invite la délégation d'Israël à présenter la politique suivie par l'autorité de la concurrence israélienne concernant l'utilisation d'outils réactifs et proactifs de détection des ententes. Il fait remarquer qu'Israël est l'un des pays qui recourt, dans une très large mesure, aux enquêtes d'office bien que ce pays ait mis en place un programme de clémence en 2005.

La délégation d'Israël confirme que la pratique de l'autorité de la concurrence du pays s'agissant des ententes est sans équivalent au sens où cette autorité recourt très largement à des outils de détection qui ne relèvent pas de son programme de clémence. Cela étant, en raison des ressources limitées dont elle dispose, l'autorité de la concurrence israélienne n'utilise pas de techniques de filtrage complexes mais procède à un travail de renseignement assimilable au travail de la police. L'enquête est conduite par l'équipe chargée du renseignement et suivie par une équipe d'enquêteurs (composée de 22 personnes en tout). La délégation souligne que les entreprises israéliennes ne recourent pas fréquemment au programme de clémence pour toutes sortes de raisons, la plus importante tenant à la crainte d'une mise au ban sociale du demandeur. C'est pourquoi, au cours de ces cinq dernières années, l'autorité de la concurrence n'a ouvert que deux enquêtes relatives à des ententes dans le cadre de son programme de clémence et en a, en revanche, engagé 15 autres après avoir utilisé d'autres outils. La délégation conclut en décrivant les principaux avantages et inconvénients respectifs des outils réactifs et proactifs de détection des ententes. Elle souligne ainsi que les outils proactifs permettent à l'autorité de la concurrence de mieux hiérarchiser son action répressive et de se concentrer sur les ententes les plus importantes.

Mme Rosa M. Abrantes-Metz félicite Israël pour s'être efforcée d'utiliser des outils de détection n'entrant pas dans le cadre de son programme de clémence et souligne que les ressources considérables que nécessitent ces outils est un argument couramment avancé par ceux qui sont opposés à l'utilisation de filtres. Cela étant, comme le montre la pratique israélienne, il suffit de 22 personnes pour détecter des ententes au moyen de filtres. Toute la question est d'allouer le plus efficacement possible les ressources dont dispose l'autorité de la concurrence.

Le Président remercie la délégation israélienne et Mme Abrantes-Metz pour leurs remarques et donne la parole à la délégation des États-Unis. Il note que, d'après la contribution de ce pays, le ministère de la Justice américain a expérimenté, dans le passé, des outils de filtrage et appliqué des mesures proactives de détection des ententes, mais en a conclu que les instruments réactifs étaient les plus efficaces.

La délégation des États-Unis commence son exposé en expliquant que les autorités américaines ont largement utilisé des filtres dans le passé mais que cette expérience ne peut être considérée comme une réussite du fait que ces programmes n'ont pas permis de mettre au jour un grand nombre d'ententes. Cela étant, la délégation des États-Unis note que le fait d'être dotée d'un programme de clémence fonctionnant bien ne veut pas forcément dire que l'autorité de la concurrence ne peut pas également intervenir par des moyens proactifs pour détecter des ententes. Le ministère de la Justice a ainsi lancé toute une série d'autres initiatives – comme une formation consacrée à l'identification des signaux d'alerte et à la collusion, des sites Internet spécialisés, des allocutions de hauts responsables, des réunions avec des associations professionnelles – qui peuvent toutes être considérées comme des mesures proactives de lutte contre les ententes. La délégation des États-Unis note que, pour lutter contre les ententes, il est nécessaire de réunir des preuves nombreuses et solides et qu'à ce titre, le programme d'amnistie américain est une grande réussite puisqu'il permet aux membres d'ententes de témoigner et de coopérer avec les autorités. La délégation note par ailleurs que l'utilisation infructueuse de filtres dans le passé ne signifie pas nécessairement que les États-Unis n'y auront plus jamais recours à l'avenir, notamment si l'autorité de la concurrence est en mesure de recueillir des pièces à conviction essentielles par ce moyen.

Mme Abrantes-Metz formule quelques remarques sur l'intervention de la délégation américaine. Elle souligne qu'une affaire qui a eu un grand retentissement, à savoir l'affaire du LIBOR, a été mise au jour à l'aide de filtres, ce qui a conduit les banques mises en cause à déposer une demande de clémence, un processus qui a porté ses fruits. Mme Abrantes-Metz souligne que les méthodes de filtrage et le programme de clémence ne sont pas interchangeables. Les filtres constituent toutefois un moyen d'action complémentaire qui peut venir renforcer l'efficacité d'un programme de clémence. Enfin, s'ils peuvent ne pas procurer à l'autorité de la concurrence les pièces à conviction requises par un tribunal et prouvant

qu'une infraction a été commise, les filtres peuvent faire office de signaux d'alerte et permettre, au bout du compte, de détecter des ententes et, le cas échéant, d'ouvrir des enquêtes.

Le Président donne ensuite la parole au Canada dont le point de vue est plus pondéré, du fait que le Bureau de la concurrence Canada recourt très largement à la fois au programme de clémence et à d'autres méthodes.

La délégation du Canada insiste sur le fait que le Bureau de la concurrence se sert de tous les moyens disponibles pour mettre au jour des ententes. Au Canada, 80 % des enquêtes initiées le sont suite à de demandes d'immunité. D'autres mécanismes de détection sont également utilisés, comme des programmes actifs de sensibilisation, des contacts réguliers avec les organismes chargés des marchés publics, le dialogue avec les entreprises pour les inciter à se conformer à la loi, les activités de liaison avec d'autres organismes d'enquête publics pour les informer de la compétence dévolue au Bureau. Toutes ces mesures proactives s'avèrent très efficaces. Le Bureau repère aussi s'il y a lieu d'ouvrir une enquête en pratiquant une veille médiatique et en passant en revue les rapports d'associations professionnelles et les communiqués de presse. La délégation conclut que, pour le Bureau, le programme de clémence est un outil d'application très important mais qu'il est essentiel de ne pas y recourir de manière exclusive si l'on souhaite que le programme de détection des ententes soit efficace.

S'agissant plus précisément de l'utilisation de techniques de filtrage, la délégation du Canada explique que les filtres soulèvent des problèmes du point de vue du rapport coûts-avantages, en particulier si les ressources allouées aux enquêtes sont limitées comme c'est le cas dans son pays. Un autre problème lié à l'utilisation de filtres est le manque de données suffisantes pour pouvoir les appliquer ; l'accès aux données nécessaires constitue une limite importante qui peut avoir une incidence sur les résultats obtenus à l'aide des outils de filtrage. Cela étant, la principale difficulté posée par les filtres tient au fait qu'ils ne procurent généralement pas de preuves solides de l'existence d'une entente et qu'il est donc difficile d'aller plus loin sans mener une enquête plus poussée.

Le Président remercie la délégation du Canada pour l'intérêt de ses remarques et donne la parole à M. Schinkel qui explique pourquoi, selon lui, le recours au seul programme de clémence ne suffit pas toujours pour détecter des ententes.

M. Schinkel souligne que la lutte contre les ententes s'apparente au jeu du chat et de la souris. Les entreprises disposant de conseillers en interne sont de véritables professionnelles du droit de la concurrence et sont généralement bien armées pour se soustraire à la détection des ententes et aux enquêtes menées par les autorités de la concurrence. Selon M. Schinkel, l'équilibre entre les méthodes proactives et réactives est variable d'une autorité de concurrence à l'autre. La plupart d'entre elles jugent les programmes de clémence très efficaces et donc préférables aux filtres. Cela étant, les programmes de clémence et les filtres ne sont pas interchangeables, tout en étant complémentaires. M. Schinkel expose cinq raisons pour lesquelles, selon lui, les autorités de la concurrence ne doivent pas s'en remettre exclusivement aux programmes de clémence. Premièrement, le succès de ces programmes ne doit pas uniquement se mesurer à l'aune du nombre de demandes déposées ou de décisions rendues par l'autorité de la concurrence. Si ces programmes s'avèrent efficaces au stade des poursuites, ils ne permettent pas toujours de détecter des ententes. Deuxièmement, la nature et la qualité des ententes mises au jour par le biais d'un programme de clémence sont parfois discutables. Ces programmes ne permettent pas toujours de détecter les ententes complexes, mais plutôt celles qui ne sont plus payantes ou qui ne sont plus stables. Troisièmement, s'ils sont actifs, les membres des ententes sont en mesure suivre de près le programme d'action de l'autorité de la concurrence et de prédire de ce fait s'ils risquent d'être détectés (et donc d'éviter cela), d'où la comparaison faite au début avec le jeu du chat et de la souris. M. Schinkel explique que les filtres ne procurent pas d'éléments probants et que leurs résultats doivent préluder à l'ouverture d'enquêtes plus poussées. Des travaux économiques voire économétriques complexes sont nécessaires dans certains cas.

M. Schinkel conclut que pour appliquer un programme idéal de détection des ententes, il faut conjuguer, en faisant preuve de discernement, le recours à un programme de clémence, une analyse des informations provenant de plusieurs sources (comme la presse généraliste ou professionnelle) et une analyse des données visant à repérer des signaux d'alerte.

Le Président remercie M. Schinkel et invite le BIAC à donner son avis sur les avantages directs et indirects des filtres du point de vue des entreprises.

Le BIAC indique que le recours aux filtres, s'il est couronné de succès, peut améliorer l'efficacité d'un programme de clémence et, partant, augmenter le taux de répression des ententes. Cela étant, le BIAC estime que l'utilisation de ces outils se heurte à d'importantes limites et plaide en faveur d'un usage très mesuré de ces techniques. Selon le BIAC, la question à se poser est davantage de savoir quelle méthode procure les meilleurs résultats, étant entendu qu'une détection efficace des ententes est dans l'intérêt des entreprises. Même s'il est difficile de donner de chiffres précis, les programmes de clémence permettent d'obtenir un taux de détection élevé. Cela étant, ce mécanisme peut ne pas fonctionner efficacement dans tous les pays et dans toutes les situations. Il doit donc être laissé à l'appréciation de chaque autorité de la concurrence de décider de consacrer ses ressources aux outils proactifs, aux outils réactifs ou à ces deux modes de détection.

2. Expérience tirée de l'utilisation de filtres comportementaux

Le Président remercie le BIAC de sa contribution à la discussion et invite les délégations à faire part de leur expérience de l'utilisation de la méthode du filtrage comportemental et des succès qu'ils ont remportés à cet égard. Pour ouvrir cette discussion, il invite le Mexique à présenter son expérience dans l'affaire de l'IMSS.

La délégation du Mexique estime que le programme de clémence constitue le principal outil de détection des ententes dans son pays. Elle dit cependant bien voir quel est l'intérêt de s'efforcer de mettre en œuvre une double approche, en menant des enquêtes d'office et, dans le même temps, des enquêtes engagées à la suite de demandes de clémence. La délégation présente un bilan de l'usage de filtres qu'a fait l'autorité de la concurrence mexicaine dans l'affaire de l'Institut mexicain de la sécurité sociale (IMSS). L'affaire a débuté en 2006 quand l'IMSS a informé la Commission fédérale de la concurrence économique (CFCE) qu'il avait remarqué l'existence de soumissions suspectes lors d'appels d'offres portant sur le marché de certains médicaments. La CFCE a donné priorité à l'analyse des offres à l'aide de filtres. Les filtres étaient fondés sur la survenue d'événements improbables ainsi que sur le contrôle de familles de médicaments de 2003 à 2007. Le recours aux filtres a permis d'obtenir des résultats intéressants, surtout pour deux familles de médicaments, l'insuline et les solutions salines : la moyenne annuelle des offres retenues et non retenues était identique mais a évolué après l'arrivée d'un nouveau concurrent. Au cours des années durant lesquelles l'entente a fonctionné, le montant de l'offre moyenne était même de 70 % plus élevé. Les données ont fait ressortir des mécanismes de rotation des offres, chaque entreprise faisant partie de l'entente remportant au fil des ans le même nombre de marchés. À partir de ces premiers éléments, la CFCE a ouvert une enquête approfondie qui a mis au jour des preuves de contacts et de communications entre les soumissionnaires. En guise de conclusion, la délégation indique que les filtres peuvent être relativement utiles mais que les autorités doivent tenir compte du fait que leur utilisation recèle un risque d'erreurs plus important et peut nécessiter l'emploi de ressources considérables.

Le Président donne la parole à la Suède afin que celle-ci présente son expérience de l'utilisation de filtres comportementaux.

La délégation de la Suède décrit la mise en œuvre très fructueuse d'un filtre comportemental sur le marché des pompes funèbres et des transports funéraires. Après avoir reçu une dénonciation, l'autorité de

la concurrence suédoise a décidé de contrôler, au moyen de filtres, tous les appels d'offres publics sur ce marché pendant deux ans. Ce filtrage lui a permis de repérer un certain nombre d'offres identiques soumises par des entreprises concurrentes. Elle a alors procédé à des perquisitions et a infligé des amendes aux contrevenants. La délégation suédoise cite également, à titre d'exemple, une affaire de commission concertée dans le secteur du bâtiment. À l'aide des informations dont elle disposait sur les soumissions, l'autorité a observé que la différence entre une offre retenue et une offre rejetée était négligeable, la première décimale des deux valeurs étant identique. Selon les estimations, la probabilité qu'une telle situation se produise était d'une sur 3000, ce qui a nourri des soupçons sur l'existence possible d'une entente. Cela étant, les éléments recueillis lors d'une perquisition n'ont pas permis d'établir la preuve d'une malversation.

Le Président remercie la délégation de la Suède et invite le Chili à faire part de son expérience très intéressante sur le marché de la volaille sur lequel une enquête à caractère général et l'utilisation de filtres ont permis de détecter une véritable affaire d'entente.

Selon la délégation du Chili, les filtres comportementaux se sont avérés être un outil très utile pour les enquêtes, sachant que le programme de clémence chilien n'est pas très efficace. La délégation du Chili cite deux exemples de l'utilisation de méthodes de filtrage. Elle expose dans un premier temps l'affaire des officines de pharmacie, dans laquelle une amende de 40 millions USD a été infligée. L'affaire a débuté avec le signalement de hausses de prix inhabituelles après une période de reflux régulier des prix et qui pouvait s'expliquer par des chocs de coûts ou de la demande. Après cette analyse, une enquête plus poussée a permis de recueillir des éléments tangibles de communications (courriels) entre concurrents. Dans l'affaire du secteur de la volaille, que le tribunal de la concurrence n'a pas encore jugée, l'autorité de la concurrence a analysé les parts de marché respectives des entreprises en cause et leur stabilité. Les données ont fait ressortir que les parts de marché n'avaient pas évolué sur une très longue période. L'autorité de la concurrence a saisi la justice et a obtenu l'autorisation de procéder à une perquisition ce qui lui a permis de recueillir de nouvelles preuves.

3. Expérience de l'utilisation de filtres structurels

Le Président ouvre la discussion sur les filtres structurels et invite l'Australie à faire part de son expérience à cet égard dans le cadre d'un projet de filtrage structurel intitulé « Projet de renseignements sur les ententes ».

La délégation de l'Australie note que l'utilisation conjuguée de filtres comportementaux et structurels a donné des résultats tangibles. Le recours aux filtres a procuré à l'Australian Competition and Consumer Commission (ACCC) la possibilité d'imposer aux acteurs d'un marché de lui communiquer des documents. La délégation insiste sur le fait que l'utilisation de filtres requiert dans un premier temps d'y investir des ressources, mais que compte tenu de la souplesse du processus, le besoin de ressources est relativement faible une fois ce programme opérationnel. Cela étant, les filtres en tant que tels ne permettent pas de mener des poursuites à leur terme. C'est pourquoi il est indispensable de les conjuguer à d'autres outils réactifs, comme un programme d'immunité, afin de parvenir à des résultats appréciables.

Le Président remercie la délégation de l'Australie et donne la parole à celle du Japon, lui demandant d'évoquer les liens entre les facteurs structurels et les risques de formation d'ententes analysés dans un rapport publié par le Centre d'étude sur la politique de la concurrence de la Japan Fair Trade Commission (JFTC).

La délégation du Japon explique que la JFTC ne se sert pas de filtres structurels, mais qu'elle envisage actuellement la possibilité d'y recourir. Rattaché à la JFTC, le Centre d'étude sur la politique de la concurrence (Competition Policy Research Centre ou CPRC) est composé d'universitaires chargés de

réaliser des études et des recherches indépendantes. Dans l'un de leurs rapports, les chercheurs du CPRC se sont servis de données sectorielles couvrant une période de 15 ans et ont mené à bien une étude économétrique pour estimer la probabilité de l'existence d'ententes dans différents secteurs. Pour cette étude, les chercheurs se sont fondés sur plusieurs variables (comme le taux de concentration du secteur ou les obstacles à l'entrée) pour prévoir la probabilité de formation d'ententes. Cela étant, les résultats statistiques obtenus n'ont pas été très satisfaisants. Dans cette perspective, l'analyse et ses résultats peuvent servir d'éléments de référence pour mettre au jour des ententes mais non pour prouver leur existence. La délégation conclut en précisant que ce type d'analyse doit être utilisé avec précaution et qu'il convient davantage de se servir des résultats qui en découlent en complément des enquêtes classiques.

Le Président donne la parole à M. Schinkel et Mme Abrantes-Metz qui réagissent brièvement à ce sujet.

M. Schinkel fait une remarque rapide sur le fait qu'il convient en effet d'utiliser les filtres structurels avec beaucoup de précautions. Le fait qu'un secteur d'activité présente des caractéristiques susceptibles de favoriser la collusion ne signifie pas qu'une entente s'y est formée. Les filtres comportementaux offrent une grille d'analyse plus étendue. Mme Abrantes-Metz dit partager l'avis de M. Schinkel et ajoute que le recours exclusif aux filtres structurels peut donner lieu à des erreurs d'application. Les filtres structurels doivent être utilisés en association avec des filtres comportementaux ou économétriques afin de conjuguer les indications qui peuvent découler des caractéristiques structurelles d'un secteur d'activités et les informations sur le comportement des entreprises.

Le Président les remercie pour leur intervention et invite le Taipei chinois à présenter son expérience de l'utilisation de filtres structurels.

Selon la délégation du Taipei chinois, le programme de clémence du pays ne s'est pas avéré très efficace, une seule demande ayant été adressée aux autorités à ce jour. Cette situation est due à plusieurs raisons, certaines d'ordre culturel et d'autres tenant au fait que les entreprises du pays sont des PME. Le programme de clémence n'ayant pas produit les résultats escomptés, l'autorité de la concurrence a davantage axé son action sur les filtres structurels et comportementaux. La délégation explique comment l'autorité de la concurrence a suivi 6 indicateurs structurels (l'ampleur des secteurs, leur concentration, les obstacles à l'entrée, l'efficacité de leur fonctionnement, l'innovation et l'évolution de la croissance des secteurs) des grands secteurs d'activité nationaux comme la fabrication de produits alimentaires, la production d'autres minéraux non métalliques, les produits informatiques, électroniques et optiques, l'électricité et le gaz, les activités de construction spécialisées, la collecte des déchets, entre autres. Plusieurs de ces secteurs se caractérisent par d'importants obstacles à l'entrée, l'homogénéité des produits et un très faible taux d'innovation ayant conduit l'autorité de la concurrence à repérer une uniformité significative des prix. Dans la plupart de ces secteurs, il existe des ententes.

Le Président invite le Royaume-Uni à faire connaître le point de vue de ses autorités de la concurrence sur les filtres structurels. La contribution remise par le Royaume-Uni pour la table ronde donne à penser que les filtres structurels ne permettent guère d'obtenir des éléments suffisamment solides pour ouvrir des enquêtes.

La délégation du Royaume-Uni souligne qu'il n'existe, dans son pays, aucun scepticisme au sujet des filtres structurels. Au contraire, les autorités britanniques se sont efforcées, dans le passé, d'identifier quels facteurs structurels d'un marché risquent de donner lieu à des pratiques de collusion. Cela veut dire que les filtres structurels sont un outil complémentaire important et cela montre que les autorités britanniques n'ont aucune défiance s'agissant de l'utilisation de ces filtres. La délégation indique par ailleurs qu'outre les affaires découlant de l'application du programme de clémence, les autorités britanniques ont ouvert un certain nombre d'enquêtes en se fondant sur les affaires que l'OFT avait lui-même mises au jour. L'OFT

est doté d'une solide unité de renseignement qui coopère étroitement avec les différents secteurs économiques, une approche qui s'est avérée payante. La délégation fait également remarquer que l'utilisation de filtres (comme l'analyse des fluctuations de prix) ne peut procurer, semble-t-il, un fondement suffisant pour demander à un juge l'autorisation de procéder à une perquisition ou d'utiliser des techniques de surveillance intrusives (comme des enregistrements téléphoniques), autorisation qui doit être justifiée par des soupçons raisonnables. Les méthodes de filtrage peuvent donc être un outil intéressant, mais une enquête plus poussée est toujours nécessaire avant que l'OFT puisse tenter une action en justice dans une affaire d'entente.

Le Président remercie le Royaume-Uni et donne la parole aux Pays-Bas.

La délégation des Pays-Bas fait savoir qu'au cours des 7 dernières années, la NMa mené à bien un processus de filtrage structurel complet de l'économie néerlandaise, passant plus de 500 secteurs au crible de divers indicateurs structurels. Ce processus a abouti à l'élaboration d'un indicateur de la concurrence qui fait apparaître le risque de comportement anticoncurrentiel dans certains secteurs. Cette méthode est connue du public et ne peut donner lieu à des manipulations. L'expérience de la NMa montre tout d'abord qu'il peut être difficile de choisir une méthode de filtrage réellement stable et qu'il est en permanence nécessaire de vérifier la validité de la méthodologie utilisée et de l'améliorer. Deuxièmement, il peut être difficile de valider les résultats obtenus au moyen de la méthode de filtrage. Et troisièmement, les méthodes de filtrage s'avèrent d'autant plus efficace qu'elles sont associées à un programme de clémence et à d'autres modes de détection des ententes. La délégation conclut qu'une fois qu'une méthode a été bien mise en place, elle ne requiert plus de mobiliser des effectifs considérables.

À ce stade, M. Schinkel fait observer que les filtres risquent de conduire à des erreurs de type II (à savoir qu'ils ne permettent pas de détecter certaines ententes existantes). Ainsi, aux Pays-Bas, l'indicateur de la concurrence de la NMa n'a pas permis de mettre au jour une entente dans le secteur du bâtiment, qui était pourtant la plus importante entente ayant jamais donné lieu à une enquête dans ce pays. M. Schinkel fait en outre remarquer que l'annonce du lancement d'un programme de filtrage au public est importante à des fins de dissuasion, mais que l'autorité de la concurrence ne doit pas divulguer la méthodologie utilisée à cette fin si elle ne souhaite pas que les entreprises mettent en place des parades pour contrer ses efforts de détection. La délégation néerlandaise convient que l'entente qui opérait dans le secteur du bâtiment n'a pas pu être détectée au moyen de filtres. Cela étant, s'il existe des faux positifs résultant de l'utilisation de filtres, celle-ci génère également des faux négatifs, raison pour laquelle il convient d'associer l'emploi de filtres structurels et le recours à un programme de clémence et à l'utilisation de filtres comportementaux.

Le Président remercie la délégation et donne la parole à M. William Kovacic qui présente son exposé.

M. Kovacic présente un exposé sur les avantages de diversifier les modes de détection des ententes. Il présente dans les grandes lignes les différentes solutions qui s'offrent aux autorités lorsqu'elles élaborent un programme de lutte contre les ententes. À condition d'être dotée des ressources nécessaires, une autorité de la concurrence dispose de différentes solutions pour lutter plus efficacement contre les ententes. À cette fin, elle peut : a) centrer son action sur la substance même de la loi et instaurer des interdictions catégoriques ; b) élargir l'éventail des éléments qui peuvent être considérés comme des preuves d'une action concertée ; c) augmenter les probabilités de détection ; d) augmenter les probabilités de poursuites, par exemple en instituant des possibilités d'intenter une action civile pour compléter ses pouvoirs d'application ; e) renforcer l'efficacité des décisions rendues ; f) alourdir les sanctions ; g) consacrer davantage de ressources aux activités de promotion. Trois principaux obstacles s'opposent à cette diversification. Premièrement, le fait que, dans la pratique, le recours aux filtres n'est pas toujours couronné de succès. M. Kovacic évoque son expérience personnelle au sein de la Federal Trade Commission (FTC) où les programmes de filtrage ont été mal pensés et n'ont pas donné de résultats suffisants. Deuxièmement, les programmes de clémence permettent de réunir des éléments de preuve

solides et aboutissent à des résultats tangibles qui sont essentiels pour pouvoir consacrer des ressources à la répression des ententes. Troisièmement, notamment pour les autorités de la concurrence ne disposant pas de financements suffisants, tout investissement majeur est de nature à faire peser sur elles une charge supplémentaire qu'elles ne sont donc pas très enclines à assumer.

Selon M. Kovacic, il importe aussi de se souvenir que les membres des ententes font preuve d'ingéniosité et d'inventivité et savent s'adapter pour se soustraire au risque de détection. Former une entente est extrêmement rentable et celles qui fonctionnent bien s'adaptent de plus en plus efficacement à un nouvel environnement. M. Kovacic conclut en décrivant les différentes approches spécifiques qu'une autorité de la concurrence doit adopter. Elles doivent investir en permanence dans de nouvelles techniques et faire évoluer les plus anciennes. Ainsi, les programmes de clémence ont représenté un investissement et il a fallu en passer par un stade important d'expérimentation avant qu'ils puissent porter leurs fruits. Une autre approche consiste à investir dans des études de marché. La FTC a ainsi réalisé, avec succès, plusieurs séries d'études de marché portant sur les secteurs pétrolier et pharmaceutique. En réalisant de telles études, les autorités peuvent être à même de détecter un plus grand nombre d'ententes.

Le Président remercie M. Kovacic et invite Mme Abrantes-Metz à expliquer comment concevoir des filtres complexes.

Mme Abrantes-Metz commence son exposé en expliquant qu'elle se sert de filtres dans son travail depuis près de 10 ans et qu'elle a toujours perçu une certaine résistance vis-à-vis de l'utilisation de ces outils. Selon elle, il n'est opportun de comparer les méthodes de filtrage actuelles avec celles employées il y a 40 ans et qui se sont avérées inefficaces. La réflexion économique et les éléments recueillis sur le mode de fonctionnement des ententes, ainsi que les méthodologies utilisées pour modéliser les pratiques de collusion ou au contraire de respect des règles de concurrence se sont nettement développées ces dernières années et les filtres sont désormais bien plus fiables qu'auparavant. Mme Abrantes-Metz cite plusieurs exemples d'application de filtres ayant donné des résultats concrets, comme l'affaire de l'IMSS au Mexique évoquée par la délégation de ce pays, le filtre utilisé au Brésil sur le marché de l'essence et le filtre qui a permis de détecter la collusion présumée sur le NASDAQ aux États-Unis dans les années 90, à savoir la pyramide de Ponzi mise en place par Madoff, les filtres appliqués aux cours des actions aux États-Unis, l'affaire canadienne relative à la construction routière et enfin l'affaire la plus récente, celle du LIBOR, qui a constitué la plus récente et la réussite la plus éclatante de l'application d'une technique de filtrage.

L'affaire du LIBOR a débuté en 2008 lorsque le Wall Street Journal a fait paraître des articles sur une possible manipulation de l'indice. L'application de filtres par Mme Abrantes-Metz et d'autres a permis de démontrer que le LIBOR suivait des évolutions inhabituelles et que ces fluctuations pouvaient être un signe de collusion éventuelle. Mme Abrantes-Metz a ainsi démontré que le LIBOR n'avait pas fluctué du tout depuis près d'un an comparé à d'autres indices de référence qui avaient évolué, même très peu. En outre, lorsque d'autres indicateurs (comme les contrats d'échange sur risque de défaillance) ont fait apparaître une montée du risque sur le marché, le LIBOR n'a pas réagi du tout à ce facteur. Ce schéma n'a pas pu être considéré en soi comme une preuve de manipulation de l'indice, mais a suscité de sérieuses préoccupations quant à sa crédibilité. Cette situation a éveillé l'intérêt des autorités et a conduit les contrevenants à solliciter le bénéfice de la clémence et à l'ouverture d'un certain nombre d'enquêtes dans le monde entier portant sur le LIBOR. Plusieurs autorités de la concurrence examinent à l'heure actuelle d'autres affaires portant sur des indices analogues. Mme Abrantes-Metz insiste sur le fait que l'affaire du LIBOR démontre l'intérêt indéniable de l'application de filtres. Le recours à cette méthode est, dans une large mesure, de nature à permettre de détecter des pratiques frauduleuses. Il existe de toute évidence une complémentarité entre les filtres et les programmes de clémence. Les filtres peuvent aussi aider les autorités de la concurrence à définir des priorités pour l'utilisation de leurs ressources et axer leurs activités d'enquête sur les marchés et/ou les affaires qui méritent le plus leur attention. Ils peuvent en outre permettre de détecter

des pratiques illicites et dissuader les intéressés de s'y livrer ; en effet si les entreprises savent qu'un processus de filtrage est en place, elles y réfléchiront à deux fois avant de former une entente.

Les critiques concernant les filtres portent généralement sur plusieurs points. Premièrement, les erreurs que peut induire le processus de filtrage constituent un risque réel, mais peuvent être le fait de toutes sortes de facteurs qui sont parfois sans rapport avec les filtres eux-mêmes (tenant par exemple au manque de compétences disponibles pour appliquer le filtre comme il convient). Deuxièmement, certains font valoir que les filtres ne permettent pas de faire la distinction entre la collusion tacite et la collusion explicite. Mme Abrantes-Metz a cité l'exemple du LIBOR, expliquant que le même jour, la quasi-totalité des 16 banques concernées avaient soumis une cotation identique, ce qui ne constitue bien entendu pas une preuve de collusion explicite même si cette forme de collusion constitue une explication plus probable de la situation en question que la collusion tacite. Le troisième argument invoqué est que les filtres nécessitent l'emploi de ressources considérables. Cela n'est pas faux, mais pas systématique ; ainsi, le filtrage de données qui a permis de mettre au jour la manipulation du LIBOR n'a pas duré plus de 5 jours. En conclusion, Mme Abrantes-Metz insiste sur le fait que les autorités de la concurrence doivent prendre les méthodes de filtrage au sérieux. Les données et techniques sont bien plus fiables aujourd'hui qu'il y a 40 ans et l'affaire du LIBOR peut être utilisée comme un très bon exemple pour convaincre les sceptiques.

4. La mise en œuvre d'un programme filtrage

Le Président remercie Mme Abrantes-Metz et en vient à la partie suivante de la discussion qui porte sur les difficultés auxquelles les autorités de la concurrence sont susceptibles de se heurter lorsqu'elles appliquent des filtres. Pour ouvrir cette discussion, le Président invite la délégation de l'Estonie à présenter la situation d'une petite autorité de la concurrence dotée de ressources limitées.

Selon la délégation de l'Estonie, les enquêtes d'office ouvertes par l'autorité de la concurrence le sont généralement à la suite d'articles parus dans la presse, un processus qui peut être à l'origine de distorsions des faits ou de fausses accusations. Cela étant, l'autorité de la concurrence a obtenu de bons résultats après avoir coopéré avec les médias. En 2010, un quotidien lui a demandé ses commentaires sur les retombées juridiques que pourrait avoir un accord de partage de marché conclu par plusieurs prestataires de services de sécurité avant de publier un article sur cette entente, à la suite de quoi l'autorité de la concurrence a ouvert une enquête et, après le dépôt d'une demande de clémence par les prestataires contrevenants, leur a infligé une amende.

Le Président remercie la délégation de l'Estonie et invite la Hongrie à faire part de son expérience de l'utilisation de plusieurs méthodes de filtrage conjuguées.

La délégation de la Hongrie fait savoir que l'autorité de la concurrence de son pays (la GVH) utilise toutes sortes d'outils réactifs pour détecter les ententes. La GVH se sert d'outils réactifs, comme les plaintes formelles, les dénonciations de lanceurs d'alerte ou encore son programme de clémence. Elle a adopté ces derniers temps toute une série d'outils proactifs, comme la diffusion d'une brochure à l'intention des responsables des marchés publics, des sessions de formation et un site Internet consacré aux mesures de conformité. En ce qui concerne l'utilisation de filtres, la délégation présente trois exemples de situation où la GVH a tenté d'appliquer des filtres au cours des sept dernières années. En 2007, l'autorité de la concurrence s'est efforcée d'adopter un dispositif en deux étapes, se composant dans un premier temps d'une analyse sectorielle visant à décrire le niveau de concurrence sur le marché puis dans un deuxième temps d'une analyse portant sur un événement critique visant à mettre au jour une entente. Ce projet a échoué, faute de ressources suffisantes. En 2010, l'économiste en chef de la GVH et son équipe ont tenté d'appliquer un modèle comportemental pour détecter les ententes ; cela étant, la masse de données requises était très importante et il était difficile de se les procurer. À l'heure actuelle, l'autorité centre son action sur la détection d'affaires de soumissions concertées, à l'aide d'une base de données électronique répertoriant

les appels d'offres publics. À l'heure actuelle, la GVH coopère étroitement avec l'organisme chargé des marchés publics pour mettre fin à plusieurs problèmes que ces données ont permis de mettre au jour grâce à la manière dont celles-ci sont structurées dans la base de données.

Le Président donne ensuite la parole BIAC pour une brève intervention avant d'ouvrir la discussion sur l'utilisation de filtres en vue de détecter les soumissions concertées.

Selon le BIAC, le bilan de 20 années d'analyse économique des ententes montre que la grande majorité d'entre elles ne sont pas très complexes. Il est censé d'appliquer des filtres pour détecter des soumissions concertées, car les comportements inhabituels dans le cadre des marchés publics – par exemple quand des soumissionnaires présentent des offres identiques ou quand des concurrents ont mis en place un système de roulement sur la durée – sont plus faciles à repérer. Cela étant, l'application de filtres en vue de mettre au jour des ententes sur les prix est plus difficile car l'accès à des données utiles est limité, ce qui complique l'établissement de la preuve d'une hausse des prix inhabituelle ou d'une évolution atypique de la volatilité des prix. Le BIAC souligne que l'expérience concernant les ententes montre que même lorsque les données nécessaires sont disponibles, il est encore difficile de prouver l'existence d'une collusion explicite. Le BIAC conclut que pour concevoir des filtres qui permettront de repérer des pratiques de collusion, il serait utile que les autorités commencent par évaluer l'impact réel de ces pratiques.

5. L'utilisation de filtres pour détecter les soumissions concertées

Le Président invite la Corée et l'Italie à faire part de leur expérience de l'utilisation de filtres pour détecter des soumissions concertées.

La délégation de la Corée présente son système d'analyse des indicateurs de soumissions concertées (Bid Rigging Indicators Analysis System ou BRIAS). Le BRIAS est un système d'analyse quantitative automatique alimenté en ligne par des informations communiquées par les organismes coréens de passation des marchés publics qui analyse les probabilités que des adjudications de marchés publics aient pu être affectées par des soumissions concertées. Ce système traite différentes informations comme le taux de marchés remportés, le montant de l'offre, le nombre d'offres rejetées, les hausses de prix, etc. et produit, pour chaque appel d'offres, un indicateur du risque de soumissions concertées. La Korea Fair Trade Commission (KFTC) a tiré profit de l'utilisation du BRIAS, notamment en tant que moyen de dissuasion. Les acteurs du marché savent qu'elle surveille en permanence les appels d'offres, ce qui les dissuade d'adopter ce type de comportement. Par ailleurs, grâce au BRIAS, la KFTC a mené, avec succès, une enquête sur une soumission concertée portant sur le prolongement d'une ligne de métro. À la suite de cette enquête, les membres de l'entente se sont vus infliger une amende de 20 millions USD.

La délégation de l'Italie prend la parole et fait remarquer que l'autorité italienne de la concurrence tente très activement de renforcer ses capacités de détection des ententes, et notamment des soumissions concertées. Elle collecte les données sur les marchés publics nécessaires pour appliquer les filtres, en coopération avec l'organisme responsable de la surveillance des marchés publics. Cela étant, il n'est pas encore possible d'obtenir, grâce à la base de données, des résultats à l'aide des indicateurs de filtrage. La délégation insiste sur les efforts déployés en permanence pour améliorer les données et note que les difficultés de recueil des données ne doivent pas dissuader les autorités de la concurrence de recourir aux filtres. En conclusion, la délégation italienne fait remarquer qu'il y a toujours des avantages à tirer de ce processus, par exemple, dans le cas de l'Italie, le fait que les informations recueillies ont abouti à la rédaction d'un manuel à l'intention des autorités chargées des marchés pour les aider à détecter les soumissions concertées.

6. Autres outils réactifs qui se sont révélés efficaces

Le Président remercie les délégations qui ont fait part de leur expérience et demande à la Commission européenne quels éléments ont été à l'origine de la trentaine d'enquêtes d'office menées depuis 2005 dont elle a fait état dans sa contribution, alors même qu'elle ne fait pas un large usage des filtres.

La délégation de l'Union européenne explique que son expérience de l'utilisation de filtres économiques, qui a commencé au début des années 90, n'a pas été très fructueuse, ce qui ne veut pas dire pour autant que la Commission n'ouvre pas d'enquêtes d'office. Dans les faits, ce type d'enquêtes a représenté approximativement 20 % de toutes les enquêtes relatives à des ententes ouvertes par la DG Concurrence de 2005 à 2010. Les sources qui ont été à l'origine de ces enquêtes sont les suivantes : a) informations extérieures comme des plaintes émanant du public ou de lanceurs d'alerte ; b) d'autres directions de la Commission européenne, comme ce fut le cas du Directeur général de l'agriculture qui a communiqué des informations ayant abouti à la détection de l'entente sur le tabac brut ; c) des informations provenant de plaintes antidumping ; d) la veille du marché et les enquêtes de marché ; e) des informations provenant d'autres autorités de la concurrence, notamment par l'intermédiaire du Réseau européen de la concurrence (REC). La délégation de l'UE conclut que même si le programme de clémence est un vrai succès, les enquêtes d'office sont absolument indispensables pour mettre au jour les ententes stables que ce programme ne permet généralement pas de détecter et pour inciter plus fortement les demandeurs éventuels souhaitant solliciter le bénéfice de la clémence à prendre contact avec la Commission européenne.

7. Conclusion

Le Président remercie les experts et l'ensemble des participants pour leurs contributions et conclut la discussion sur quelques observations finales.

Premièrement, il souligne que la discussion a montré que presque chaque pays se sert de différents outils de détection des ententes et que, quels que soient les outils en question, ils semblent tous tirer parti de l'utilisation d'instruments divers.

Deuxièmement, la table ronde a fait ressortir que les filtres et les programmes de clémence, sans être interchangeables à proprement parler, peuvent se compléter. Dans certains pays où le programme de clémence ne fonctionne pas bien, les filtres concourent très utilement au succès du programme de lutte contre les ententes. Dans d'autres, ils se sont avérés un auxiliaire précieux pour le programme de clémence en incitant plus fortement les entreprises à dénoncer des ententes.

Troisièmement, il existe une différence entre les filtres structurels et les filtres comportementaux. Cela étant, il est préférable de conjuguer ces deux instruments. La discussion a montré que les filtres peuvent être utilisés comme point de départ d'une enquête mais ne peuvent à eux seuls procurer suffisamment de preuves de l'existence d'une entente. Il est donc indispensable de faire suivre l'utilisation de filtres d'une enquête en bonne et due forme.

Enfin, outre les filtres, la veille médiatique, les enquêtes et les études de marché peuvent être une très bonne solution et constituer, elles aussi, une méthode proactive très efficace de détection des ententes.

OTHER TITLES**SERIES ROUNDTABLES ON COMPETITION POLICY**

1	Competition Policy and Environment	OCDE/GD(96)22
2	Failing Firm Defence	OCDE/GD(96)23
3	Competition Policy and Film Distribution	OCDE/GD(96)60
4	Efficiency Claims in Mergers and Other Horizontal Agreements	OCDE/GD(96)65
5	The Essential Facilities Concept	OCDE/GD(96)113
6	Competition in Telecommunications	OCDE/GD(96)114
7	The Reform of International Satellite Organisations	OCDE/GD(96)123
8	Abuse of Dominance and Monopolisation	OCDE/GD(96)131
9	Application of Competition Policy to High Tech Markets	OCDE/GD(97)44
10	General Cartel Bans: Criteria for Exemption for Small and Medium-sized Enterprises	OCDE/GD(97)53
11	Competition Issues related to Sports	OCDE/GD(97)128
12	Application of Competition Policy to the Electricity Sector	OCDE/GD(97)132
13	Judicial Enforcement of Competition Law	OCDE/GD(97)200
14	Resale Price Maintenance	OCDE/GD(97)229
15	Railways: Structure, Regulation and Competition Policy	DAFFE/CLP(98)1
16	Competition Policy and International Airport Services	DAFFE/CLP(98)3
17	Enhancing the Role of Competition in the Regulation of Banks	DAFFE/CLP(98)16
18	Competition Policy and Intellectual Property Rights	DAFFE/CLP(98)18
19	Competition and Related Regulation Issues in the Insurance Industry	DAFFE/CLP(98)20
20	Competition Policy and Procurement Markets	DAFFE/CLP(99)3
21	Competition and Regulation in Broadcasting in the Light of Convergence	DAFFE/CLP(99)1
22	Relations between Regulators and Competition Authorities	DAFFE/CLP(99)8
23	Buying Power of Multiproduct Retailers	DAFFE/CLP(99)21
24	Promoting Competition in Postal Services	DAFFE/CLP(99)22
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38	Competition and Regulation Issues in Telecommunications	DAFFE/COMP(2002)6
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40	Loyalty and Fidelity Discounts and Rebates	DAFFE/COMP(2002)21
41	Communication by Competition Authorities	DAFFE/COMP(2003)4
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