



Munich Personal RePEc Archive

**Economic indicators for the presence of  
tacit collusion in merger control under  
varied focal points**

Proctor, Adrian

November 2013

Online at <https://mpra.ub.uni-muenchen.de/64964/>  
MPRA Paper No. 64964, posted 11 Jun 2015 08:18 UTC

# Economic indicators for the presence of tacit collusion in merger control under varied focal points.

Adrian Proctor<sup>1</sup>

## Abstract

*This article discusses how different focal points in a market can lead to different collusive agreements and how merger analysis can identify markets that may be vulnerable to these potential agreements. Focal points based on customer allocation and geographic markets are considered with recent UK examples of this type of analysis. The focal point firms are using for coordination can affect the transparency required to maintain coordination and how targeted or effective any punishment for deviation can be.<sup>2</sup>*

## Introduction

When considering the potential competitive harm from a merger coordinated effects analysis is often given much less prominence than the direct loss of competition between the two firms (unilateral effects). Even in mergers where

---

<sup>1</sup> Adrian Proctor has been a member of the phase 1 mergers team at the Competition and Markets Authority (CMA) (adrian.proctor@cma.gsi.gov.uk). The views in this article are not necessarily those of the Competition and Markets Authority or any other authority. Invaluable support for the ideas in this note has been received from Ioannis Kokkoris, Chris Whitcombe, and Ian Windle. Copyright © Adrian Proctor 2015.

<sup>2</sup> Since these ideas were first put together as reflected here in 2013 they have been revised and updated resulting in the publication of two articles. One by the Journal of Competition Law and Economics (Adrian Proctor, Tacit Collusion Indicators in Merger Control under Varied Focal Points, 10 J. Competition L. & Econ. 10.1093/joclec/nhu019 (2014)), and parts have been reprinted from World Competition (Proctor, Adrian J. 'Identifying Geographic or Customer-Based Collusion'. World Competition 38, no. 2 (2015): 253–280. 2015 Kluwer Law International BV, The Netherlands) with the permission of Kluwer Law international. A brief summary of some aspects can also be found in a publication where the author contributed to section 3.5: Updated Chapter 4 of the ICN Investigative Techniques Handbook for Merger Review "The Role of Economists and Economic Evidence in Merger Analysis" Prepared by The Merger Working Group April 2013: [http://icnwarsaw2013.org/docs/icn\\_mwg\\_updated\\_chapter\\_4\\_of\\_the\\_handbook.pdf](http://icnwarsaw2013.org/docs/icn_mwg_updated_chapter_4_of_the_handbook.pdf).

detailed clearance (or remedy) decisions are published coordinated effects may not even get a mention. There has been a recent proliferation of new approaches to unilateral effects analysis with different concepts and calculations for estimating pricing pressure, but the analysis of coordination often relies on a list of factors that may be important in a sometimes unstructured checklist of indicators. In some merger analysis only one or a small number of checklist points may get discussed, for instance if prices or output are not considered observable (by competitors), there may be no further discussion of whether the market appears to be conducive to coordination or if outcomes may have been consistent with this in the past.

Coordinated effects may be less likely to arise in a merger than unilateral effects, and initial examination of an uncontroversial potential merger may be able to quickly rule out both unilateral and coordinated effects. However, focussing purely on the transparency and ability of firms to coordinate on pricing measures will miss potentially important aspects of competition and could miss problematic mergers. In particular, firms can find other aspects of competition (focal points) to form the basis of any arrangement to limit competition. These focal points may be so obvious and constant to the firms that it does not require an explicit agreement for them to be implemented. It certainly cannot be assumed that other competition tools or enforcement will be used to deal with any potential concerns after the merger has occurred.

A coordinated outcome can be any situation in which the firms in the market arrange between themselves how sales will be split between them without leaving it up to customers to choose a supplier. A market where certain firms always supply the same customers or geographic areas and other firms do not offer those customers an alternative can sustain a coordinated outcome without the firms in a market being aware of the prices or sales volumes of their competitors. Transparency over these aspects of the market that firms are selling to may be enough to reduce rivalry and for competition to be curtailed. A quick review of a checklist of some coordinated effects indicators may miss that even if firms are not able to coordinate using one focal point this would not rule out all potential strategies to lessen competition.

A market where customer or geographic focal points are transparent may be more prone to coordination than if prices were transparent. In these markets it will often be clear which firm deviated first from the coordinated understanding and punishment can be targeted at this firm. This can make punishment a more severe threat while being less costly to implement.

In the rest of this article, first some background terms are clarified and some literature are briefly reviewed including the main points considered to be part of the checklist. Next is a summary of what the traditional approach is missing and an overview of the different types of focal points that can be relevant is given with the differences between them. The consistencies between the focal points are reviewed and then each of price, geographic, and customer focal points are considered in turn including an example of both geographic and customer focal points in UK competition analysis. There are some more focussed comments on how merger analysis can be adapted to consider these aspects including how the checklist could be revised before the paper concludes.

### **Background terms**

If a merger results in higher prices or a market becomes less competitive it is not always clear what is causing the effect. This section starts to draw out some of the distinctions.

Coordinated effects arise less often in a merger than unilateral effects. Coordinated effects arise when a merger changes market structure and conditions such that post-merger it becomes easier and more likely for existing firms in the market to collude.

Coordination is any agreement (whether tacit or explicit) to reduce competition between the firms in a market. All firms increase their profits and find it worthwhile to resist further increases in short-term profits in order to prevent adverse reactions by competitors which will harm the longer term collusive profits.

In contrast, the unilateral effects of a merger are caused assuming a firm takes the external reactions as given. There is no agreement or understanding established between firms, although in some markets firms may have beliefs about how competitors would react to a certain action. A firm may consider that a competitor that has lost significant sales volumes and is in danger of going out of business may try to compete more aggressively. There may be an expectation that a competitor will try to imitate a new product if it proves successful. Reacting to these individual expectations would be unilateral effects, for instance a firm could keep prices low to discourage competition or raise the price of several products to disguise the most successful. In a situation where there is coordination firms may engage

in (informal) communication with competitors to check understanding of how these firms are likely to react or try to influence competitors' expectations of how they would react. Coordination is not likely to be affected by firms discussing market expectations and plans with customers (unless these customers are a conduit for sharing information with competitors). However, even apparently innocuous discussions on these issues with competitors can have a negative impact on competition.

The same merger can change the individual incentives of firms given what they know about the market (which would be a unilateral effect), and separately enable agreement or enforcement of an agreement between firms that can give rise to coordinated effects. A merger could also change the incentives of several individual firms at the same time creating multilateral effects without there being an agreement. If a merger causes a unilateral effect where the merging parties increase prices or reduce quality this may reduce the competition faced by other providers who may independently decide to also increase prices.

Collusion emerges when a group of firms interact frequently and conjecture that any attempt to deviate from the agreement will be detected and followed by severe retaliation from competitors. Firms will coordinate or collude if the discounted future profit stream from this arrangement is higher than the discounted future profits that can be earned by a period of deviation (until the deviation is detected and punished) followed by the profits that are earned by the deviating firm in the punishment phase. For coordination to be sustainable the gains from deviation must be less than the losses from punishment. It is usually assumed when modelling this incentive that there is initially a short-term gain from deviation for the firm that deviates from a collusive agreement. For punishment to occur and be credible it must be able to restore coordination such that there is a benefit from punishment for those inflicting it. Actions that change the long-term options of firms, such as incurring substantial fixed costs, do not make good (reversible) punishments because coordination is difficult to re-establish on the same terms.

When considering coordinated effects in merger inquiries, economic theory is used to construct a plausible model of behaviour. However, economic evidence can have several plausible explanations and the risk of litigation relating to merger decisions can give limited tolerance for uncertainty. Thus it can be difficult to support a remedy finding without a very clear explanation of the expected adverse effect. A merger can in particular give rise to

coordinated effects by making coordination easier, more stable, or more effective e.g. by making it more robust or generating worse outcomes.<sup>3</sup> The European Commission defines the coordinated effects of a merger as having one of these effects or making harm to effective competition significantly more likely.<sup>4</sup> For instance, after a merger firms may gain a common perception as to how to coordinate.

In a merger regulators establish whether there is a mechanism for the firms to:

- 1) Reach a collusive understanding on the terms of coordination,
- 2) Sustain the collusion with monitoring and enforcement including whether the incentives for this are consistent, and the reactions of outsiders, and
- 3) the merger makes 1 and 2 more likely.

Often if there is existing collusion it can be difficult to demonstrate the third criterion (i.e. that the merger makes matters worse). However, without existing collusion the first criterion may be unclear and be unsubstantiated. Even if collusion is possible it does not mean it is sufficiently likely.

The difference between explicit and tacit collusion is that in tacit collusion there is a lack of a formal procedure to communicate and settle on a particular collusive agreement, it is not necessarily a difference on the outcome. Explicit coordination can be very clear to the participants. Confidential data and documents can be explicitly shared with competitors and a mechanism put in place or an outsider paid to enforce a schedule of meetings, record progress against agreed targets, or suggest reactions to competitors and industry events. Tacit collusion may not involve any formal documents transferring

---

<sup>3</sup> ECJ Impala judgement (Judgment of the Court (Grand Chamber), July 2008): The alteration [...] that the transaction would entail, significantly impedes effective competition by making coordination easier, more stable or more effective. Merger effect – Increase Coordination payoff, increase symmetry, eliminate maverick, increase transparency (especially 3 to 2).

<sup>4</sup> EC Horizontal Merger Guidelines - §22: “the merger may change the nature of competition [making firms] significantly more likely to coordinate and raise prices or otherwise harm effective competition. A merger may also make coordination easier, more stable or more effective for firms, which were coordinating prior to the merger”

between firms or an explicit statement of how customers will be disadvantaged. Harm to customers could merely follow from a group of firms adopting a less aggressive strategy and engaging in less competition for new business. However, in this instance the less aggressive strategy is not due to internal circumstances such as a lack of finance or high costs it would be the result of the understanding and agreements a firm has with others in the market.

The European Commission's merger guidelines also recognised that coordination between firms can give rise to adverse effects after a merger without an explicit agreement or breach of competition law.<sup>5</sup>

The lack of any formal action (such as passing on confidential information or signing a secret contract with your competitor) that marks out tacit collusion as anti-competitive makes it difficult to detect and build a legal case against this understanding. Even looking at the economic outcomes of a market, there may appear to be little evidence that separates competitive and (tacitly) collusive markets. The line is blurred between these outcomes because if there are no episodes of sudden price cuts or firm expansion it may not mean the firms are keeping to a collusive strategy because all firms may have similar cost structures with few opportunities to expand profitably in the competitive market. Alternatively if firms have reacted aggressively to losses of market share or customers this could be a collusive punishment against a deviation, or could merely be a competitive reaction to regain market share to meet a sales target. Firms may have been learning about the demand for their products following a new innovation or market change such that sudden price movements could be consistent with a competitive rationale.

### **Some relevant literature**

This section starts by mentioning a few cases where these issues may be relevant and then builds up an understanding of the traditional checklist

---

<sup>5</sup> EC Horizontal Merger Guidelines (§39): "A merger in a concentrated market may significantly impede effective competition, through the creation or the strengthening of a collective dominant position, because it increases the likelihood that firms are able to coordinate their behaviour in this way and raise prices even without entering into an agreement...within the meaning of Art. 81".

approach that has often been taken in the past when assessing coordinated effects.

There have been very few recent cases where the UK competition authorities, OFT (first phase) or Competition Commission (second phase), have concluded on coordination.<sup>6</sup> Coordinated effects have been suspected in a few cases that the OFT has referred to the Competition Commission<sup>7</sup> and where undertakings have been accepted in lieu of reference at first phase.<sup>8</sup> The Competition Commission had not intervened solely on the basis of coordinated effects in any recent case until the aggregates joint venture that is discussed in the customer focal points section.<sup>9</sup> The ideas behind some of the different focal points have been considered in some OFT merger cases.<sup>10</sup>

The OFT published a research paper on conjectural variations.<sup>11</sup> This paper suggests that it may be perfectly reasonable for firms to have views about how their competitors would react to an action. Other actions that firms could

---

<sup>6</sup> In April 2014 the competition functions of the OFT and CC were combined to form the Competition and Markets Authority (CMA).

<sup>7</sup> A brick merger was a reference but was ultimately cleared (Anticipated acquisition by Wienerberger Finance BV of Baggeridge Brick plc, ME/2603/06 2006). A cardboard merger was also referred for a second phase inquiry partly on concerns of coordination but was ultimately cleared (Completed acquisition by DS Smith plc of LINPAC Containers Limited, ME/1647/04, 2004).

<sup>8</sup> An undertaking in Lieu (UIL) was offered in an aggregates merger to resolve coordinated effects concerns in the Hertford area (Completed acquisition by Aggregate Industries Limited of Foster Yeoman Limited, COMP-M/4298, 2007).

<sup>9</sup> The Competition Commission had not under the Enterprise Act 2002 found a significant lessening of competition on coordinated effects until the Anglo American/Lafarge merger (<http://www.competition-commission.org.uk/our-work/anglo-american-lafarge>, 2012).

<sup>10</sup> A trading platform merger was referred to the Competition Commission on unilateral effects and then cleared (Anticipated acquisition by BATS Trading Limited of Chi-X Europe Limited, ME/4904/11, 2011). A beer distribution merger was cleared at first phase (Completed acquisition by C&C Group plc of the Tennent's business from Anheuser-Bush InBev NV/SA Group, ME/4256/09, 2009)

<sup>11</sup> OFT, Conjectural Variations and Competition Policy: Theory and Empirical Techniques 2011. <http://www.of.gov.uk/OFTwork/research/;jsessionid=B109EC3F033E31CE65310360213712AB>

take may be more questionable such as communicating to others what the likely response to their action would be. However, firms make commitments and statements about matching competition or their plans regularly so preventing such influencing of expectations would be very difficult to enforce. In the bus market it can be the actual response to entry that communicates future intentions or likely responses as much as any statement. Competition authorities can thus struggle to ensure that these apparent increases in competition benefit consumers and do not merely inflict losses on the entrant leading to disruption to services for passengers and no long term service improvement. A merger could harm welfare merely by suggesting to the market a higher priced focal point, thus the ability to reach the terms of coordination may be moved to a more harmful equilibrium without any intention of the merging parties.<sup>12</sup>

In Kuhn's review of coordination he notes that incomplete coordination can be more harmful than complete coordination.<sup>13</sup>

The paper by Compte et al models a homogenous product market where the firms have capacity constraints.<sup>14</sup> In this model large firms have a large incentive to reduce price to fill their capacity, while small firms have less ability to credibly punish and cut prices because they have limited capacity. This model goes some way to providing an explanation as to why small firms in the market may not be more likely to break a coordinated agreement (because of the incentive to supply the whole market) than larger firms.

---

<sup>12</sup> The paper also considered the effect of firms varying the degree of punishment to the degree of deviation and surprisingly stated that this may reduce the range of equilibria that coordination could maintain without explaining why lower punishment would be a suitable deterrent to a scenario that would have lower profits for the deviator even if the punishment was required to undercut the deviation.

<sup>13</sup> For instance, If firms cannot completely coordinate (all quality range and service variables) and instead just fix prices in coordination this is actually worse for the market than full coordination because firms may wastefully advertise excessively competing away the profits of coordination without benefiting consumers. Kuhn (2008) Handbook of Antitrust Economics, Edited by Paolo Buccirossi, MIT Press

<sup>14</sup> Compte, O., F. Jenny, and P. Rey (2002), "Capacity Constraints, Mergers, and Collusion", European Economic Review, Vol. 46, 1-29

In Kuhn (2004) coordinated effects are considered in when products are differentiated.<sup>15</sup> The larger firm controls more varieties of the product, and so has a greater benefit from a coordinated price rise.<sup>16</sup> The small firm controls few varieties, benefits less from a price rise and thus prefers the price to fall giving it greater incentive to deviate from a collusive outcome. This is in line with standard models of coordination where the small firms are less willing to participate.

When all firms charge the same amount under collusion any change that increases asymmetry (in particular if an acquisition reduces the size of the smallest firm or increases size of the largest) it will cause the collusive price to fall.<sup>17</sup>

When the colluding firms with differentiated products can charge different prices the larger firm will charge more) and it will charge more than the monopoly price which will ensure that the smaller firm wants to coordinate.<sup>18</sup>

Very small firms will have a minimal effect on the demand of the colluding firms no matter what they charge, but will require the collusive price to be too

---

<sup>15</sup> KAI-UWE KÜHN (2004), "THE COORDINATED EFFECTS OF MERGERS IN DIFFERENTIATED PRODUCTS MARKET". [HTTP://WWW.LAW.UMICH.EDU/CENTERSANDPROGRAMS/OLIN/PAPERS.HTM](http://www.law.umich.edu/centersandprograms/olin/papers.htm)

<sup>16</sup> Higher prices across its greater sales and thus has less incentive to punish after a deviation from a coordinated agreement.

<sup>17</sup> Such a change reduces the incentive to maintain collusion punish deviation respectively, as long as collusion is possible both before and after the merger. This result is opposite the expectation in unilateral conduct where the largest firm increasing its size should increase industry prices and profits. If the market is asymmetric (and unilateral conduct dominates pricing) increasing asymmetry increases prices, while if the market is symmetric (and prices are set by collusion) then increasing asymmetry reduces prices. Joint and single dominance are mutually exclusive in a merger context and either the merger can lead to higher prices for one reason or the other but not for both and the remedies are very different to deal with each.

<sup>18</sup> Under full asymmetric collusion both charge the monopoly price. The larger firm has more to lose from low prices as these will affect a greater number of sales.

low to keep them in the agreement. Joint dominance may be limited to a subset of larger firms where the smallest are excluded from collusion.<sup>19</sup>

The Fonseca and Normann paper looks at experiments of pure Bertrand competition where the subjects engaged in communication (anonymously and to all players simultaneously) to emulate explicit coordination.<sup>20</sup> The communication helped firms collude in all treatments and often led to the highest possible prices being charged, but the tests where there were 4 firms benefitted more than when there were only 2 (where firms managed to collude successfully tacitly) or more firms (where deviation still occurred even with communication). Communication helped coordination even after it was stopped. Communication aided alignment on a particular price and was used for conflict mediation. However, this experimental treatment of the workings of coordination may not replicate the personal and long term relationships in real markets.

The Harrington paper looks at tacit coordination through price leadership.<sup>21</sup> The paper distinguishes three types of conduct: 1) Explicit collusion is when supra-competitive prices are achieved via express communication about an agreement; 2) Conscious parallelism is when supra-competitive prices are achieved without express communication (e.g. two firms raising their prices on the automatic understanding that if either reduces price this fall will be matched); 3) Concerted action resides between these two extremes and refers to when supra-competitive prices are achieved with some form of direct communication, such as about intentions, but firms do not expressly propose and reach an agreement.

This third type is the form of communication that could be used in tacit coordination such as by unilaterally stating that your firm was trying to become a price leader and so trying to influence competitors' beliefs that your price rises should be matched without agreeing with competitors that they will match those increases. The paper assumes that a rational firm obtains beliefs

---

<sup>19</sup> If two markets have two firms with the shares split 70:30 then merging the firms that are not active in the same market may make the two remaining firms more symmetric. If prices pre and post-merger are set by collusion this increased symmetry will cause prices to rise.

<sup>20</sup> Miguel A. Fonseca and Hans-Theo Normann, (August 2012), "Explicit vs. Tacit Collusion: The Impact of Communication in Oligopoly Experiments", DICE Discussion Paper, No.65, ISBN 978-3-86304-064-2.

<sup>21</sup> Joseph E. Harrington, Jr. (January 2012), "A Theory of Tacit Collusion", [www.econ.jhu.edu/People/Harrington](http://www.econ.jhu.edu/People/Harrington).

that it will (at least) match a rival's price as long as price does not exceed the highest sustainable price. The maximum price that can be maintained under tacit coordination is lower than that under explicit coordination because the price leader has to incur a loss in the first period to set up the collusive price. It may also be that the beliefs that can be set up about the level of punishment mean only milder punishments can be sustained and thus collusive prices are lower.

Assumptions may be needed on how firms choose the price leader. Firms with low discount factors will never collude and firms with high discount factors can collude relatively well tacitly. Firms with medium or relatively high discount factors may have the highest incentive to collude explicitly in this model although the model always produces higher prices with explicit communication.

The discussion on the types of communication that can occur during tacit collusion is interesting, but the model still focuses on price coordination and again abstracts from some aspects of real markets that may be relevant. For instance, if firms can send round price increase letters in advance of a price rise these could allow price leadership price rises to be implemented simultaneously.

*Literature discussing the Features leading to Coordination:*

A paper by Ivaldi, Tirole et al explained the many features that can be related to coordination.<sup>22</sup> Tacit collusion does not require there to be communication. There are always Multiple equilibria in coordination models so it is hard to prove theoretically which outcome will happen (to do this it is important to know how the industry has evolved). A vertical merger may make coordination more likely by increasing transparency. Demand fluctuations create periods where there is greater incentive to break the coordination (because punishment will be in a lower demand and less valuable period). If there are network effects in a market then firms face a high value of growing their position and coordination is less desirable.

---

<sup>22</sup> Ivaldi, Rey, Jullien, Seabright, Tirole, (March 2003), "The Economics of Tacit Collusion", Report for the DG Competition.

The paper discusses a range of types of coordination or focal points to see which ones may be realistic. If firms were engaging in coordination based on quantity they would have less incentive to deviate and cannot be punished as severely compared to markets based on price coordination because the price level of each firm adapts to each quantity (to clear the market, an increase in quantity reduces the margin achieved and thus the incentive to deviate). If firms are producing close to maximum capacity at any one time e.g. airlines then capacity coordination is similar to quantity based models. If quantity does not move so closely with capacity then any coordination is likely to require separate price arrangements to constrain demand flexing once capacity has been built (thus the arrangement may focus on the price coordination) If capacity is lumpy (demand is constant and capacity does not depreciate) firms will compete to be the first to acquire irreversible capacity and there will be no scope for coordination. In bidding markets coordination will depend on the mechanism. Coordination based on R&D is very unlikely because the process is complex, not transparent and not timely.

A paper by Motta et al defines collusion as consisting of coordination (possibly due to communication) and enforcement.<sup>23</sup> It says multilateral effects will occur when the products are strategic complements. Coordinated effects is the impact of the merger on the incentive to tacitly or explicitly collude. Explicit collusion needs hard evidence of communication. Tacit occurs where there is a common understanding. If the competitive profit level increases (unilateral effects of a merger) then coordination becomes less attractive (it will be less likely to increase prices).

The article covers the factors that determine coordination. A firm with a larger capacity will have more incentive to deviate, so asymmetry reduces coordination. An inelastic market demand will increase incentive to raise price, but an inelastic firm demand gives a high switching cost and low incentive to either deviate or punish. Retail price maintenance reduces firms' flexibility to set profits but increases coordination transparency. Communication in public and giving price commitment to consumers is fine. However, past data can be used by firms for monitoring and future data can be used for getting agreement. So sharing past information is a concern if it is recent and disaggregated. Communication on the new equilibrium is needed to adjust to

---

<sup>23</sup> Motta and Fabra, (2013), "Coordinated effects in Merger cases"- Report commissioned by the World Bank.

a price shock. Vertical mergers reduce deviation because the firm now has downstream operations and cannot gain these volumes when deviating, but this integration lowers the punishment because the downstream integrated sales cannot be taken away. Overall collusion normally increases after a vertical merger.

The article says the conditions for collusion include requiring significant concentration (e.g. 3 firms with at least 70% between them) as well as symmetry, a history of collusion and information. Thus it is important to test the structure – is it vulnerable to coordination, and the behaviour – has coordination occurred in the past (are costs and prices linked as would be expected in competition, have there been price wars or sudden variation in market conditions). A price leadership model can estimate the maximum price rise firms would be willing to lead or match and thus the delta caused by the merger (under differentiated price competition). Using this model the coordinated PPI (Price pressure index) can be calculated.<sup>24</sup> One approach is to assume firms will coordinate both pre and post merger and calculate how much the coordinated price could rise by.<sup>25</sup>

The article discusses some European coordination cases and shows that remedies have been much more likely where coordination is between just two leading firms. The Nestle/Perrier merger would have resulted in a transparent industry with no buyer power and the leading firms having 45%, and 30%, so a divestment remedy was imposed to create a third large firm. Kali&Saltz/Mdk would have left the leading two firms with 60% in an otherwise fragmented market. There was an attempt to reduce the structural links (joint distribution deal) between these 2 leading firms but the remedy was removed on appeal. Gencar/Lonrho would have left the leading 2 firms with 90% of global platinum reserves (and in a few years production). The firms would be quite symmetrical (costs and share) and have a common interest in raising the price. The merger was blocked. In Airtours: capacity for holidays were set every 6 months or so but the court decided these decisions were not

---

<sup>24</sup> Moresi, Reitman, Salop, and Sarafidis, (2011) "Gauging Parallel Accommodating Conduct Concerns with the CPPI", SSRN: <http://ssrn.com/abstract=1924516> or <http://dx.doi.org/10.2139/ssrn.1924516>  
The coordinated PPI requires data on discount rates, margins, diversion ratios, demand elasticity's and sales.

<sup>25</sup> Aubert, Rey Kovacic. (2006). "The Impact of Leniency and Whistleblowing Program on Cartels.," International Journal of Industrial Organization.

transparent (there is an international market for hotel rooms, which is complex with many airlines and types of holiday capacity). There was also variation in demand and punishment could not happen until the next season (late season capacity was poor quality and too late). Entry barriers were also found by the court to be lower than thought. EMI/Warner was blocked and then abandoned, The Sony/BMG merger would have left 4 majors with 85% of the market jointly. There was price and product differentiation but 100 albums from each of these majors accounted for 80% of their music sales with list and discount prices aligned. The European Commission changed the decision to clearance at the last moment but the court eventually said it takes the same standard of proof to clear as to block a merger. The ABF/GBI merger reduced the market from 3 firms to 2 so transparency was increased, costs became symmetric, as well as the firms IP and active sectors. Buyer power was higher in France so there was no remedy there compared to the situation in Spain and Portugal.

The check-list approach to coordinated effects became prominent in the 1999 prohibition of the Airtours/First Choice merger by the European Commission.<sup>26</sup> This decision was annulled by the court of First Instance (CFI) in 2002 due to concerns that the coordination mechanism had not been fully explained.<sup>27</sup> The Sony/BMG merger was cleared by the European Commission in 2004. This was successfully appealed to the CFI by Impala in 2006 when the reasoning given about price transparency (without elaboration on a coordination mechanism) was not considered sufficient to demonstrate that coordination was not sustainable.<sup>28</sup> In 2008 the Impala CFI decision was overturned by the European Court of Justice (ECJ). It was decided that the standard of proof should be the same in clearance and prohibition decisions with some acceptance of uncertainty because the decision must choose the

---

<sup>26</sup> T-342/99 - Airtours v Commission, 1999.

<sup>27</sup> Judgment of the Court of First Instance (Fifth Chamber, extended composition) of 6 June 2002. Airtours plc v Commission of the European Communities.

<sup>28</sup> Sony Corporation of America and Bertelsmann AG Joint venture decision 2004 and Judgment of the Court of First Instance (Third Chamber) of 13 July 2006.

most likely scenario.<sup>29</sup> In May 2004 the European Commission adopted a new merger regulation and horizontal merger guidelines where there was adoption of the concept of “coordinated effects”.<sup>30</sup>

In September 2008 the European Commission imposed remedies in the merger between ABF and GBI which was the first case since Airtours where the intervention was based solely on coordinated effects. In this case, although the coordination was implemented with similar price increases between the firms, the monitoring and focal point appears to have been based on customer switching. The data showed that in Portugal there was not a single instance of switching at either customer or distributor level.<sup>31</sup> If distributors and producers could have discovered pre-merger the prices being charged by competitors the reduction in producers from 3 to 2 may not have made the market any more transparent. A textbook price cut punishment could have been used to enforce the agreement both before and after the merger so the merger would have had limited impact. However, the reduction in number of major competitors appears to have been an important part of the reasoning.

The merging parties (ABF and GBI) had high market shares. Although there were some different segments of focus, it was a largely homogenous market. There was spare capacity in the industry and the main structural change was that the three major players in the yeast market would be reduced to two (the parties and Lesaffre). Customers in Portugal and Spain had few alternatives to the two firms post merger. Individual customers were small and had long term relationships with the distributors (that had very long relationships with the parties and were often exclusive). The distributors supported the transparency on switching and competitor pricing and competition. The main focal point was considered to be simultaneous price increases, but carefully designed incentives with the local distributors allowed the producers to gather

---

<sup>29</sup> Judgment of the Court (Grand Chamber) of 10 July 2008.

<sup>30</sup> Council Regulation (EC) No 139/2004 of January 20, 2004 on the control of concentrations between undertakings. Guidelines on the assessment of horizontal mergers 2004, [http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52004XC0205\(02\):EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52004XC0205(02):EN:NOT).

<sup>31</sup> Commission Decision of 23 September 2008, case M.4980  
— ABF/GBI Business

information on customer switching. The reduction in competitors to two would have increased transparency over the supplier that customers switched to and allowed more specific retaliation. The merger would have removed GBI as a destabilizing force (with new patents) that was less vulnerable to retaliation due to its narrow product range.

This is not the only recent European case where collusion may have been based on the market or customers that a competitor was targeting rather than just their prices or output. For instance, in the July 2009 cartel decision on GdF Suez and Eon it was clear that the nature of the (explicit) agreement was a geographic split with each firm keeping to their domestic market.<sup>32</sup> This type of arrangement, where international firms agree not to compete in certain markets or to focus on different continents, is not unusual in explicit collusion and it may well not be unusual in instances of tacit coordination.

Many of the aspects that should be considered in analysing coordination in mergers and have formed some of the checklist of factors are covered in the EC horizontal merger guidelines.<sup>33</sup>

### **A potential check-list**

Although there are clearly defined stages for establishing whether coordination is possible or likely, the same market features can be important for more than one stage. This list reviews the market features most often associated with each of; reaching and monitoring coordination, enforcing coordination (internal stability), and ensuring external stability. Often a market will have some features that enable collusion, and some that hinder collusion. These features can relate to the structure of the market, the demand side conditions, or the supply side.

*Reaching and monitoring coordination:*

---

<sup>32</sup>Article 81 decision:<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/1099>. Explicit letters were written arranging for each firm to only supply their home market and these remained in force after liberalisation of the European energy market.

<sup>33</sup> EC Horizontal Merger Guidelines (§44-55):

For firms to replace the role of customers in choosing which firms should earn sales and profits, the firms must be able to agree on an allocation between themselves. Thus they must believe that there is a fair allocation of these rewards that they can monitor without others secretly reneging or finding ways to win additional business. The firms must also have some means to communicate this arrangement. The quicker firms can monitor or detect deviations the faster they can react and punish them. Indicators for this include:

- Past cartels or a history of collusion in the industry is usually the first signal of likely future coordination and is the best indicator that all the necessary requirements may be fulfilled in the industry;
- Market concentration. The fewer the firms the more likely is coordination because competitors are more likely to be aware of their interdependence and be able to relate a particular change in fortunes to the actions of a specific competitor.

If the market has many players the complexities in organising coordination will multiply. The benefits of deviating on an agreement and gaining additional market share are likely to be large for a small firm relative to the long-run benefit of maintaining collusion (and the current market share). Small firms may be reluctant to participate in collusion. The benefits of collusion may also depend on the size of individual orders in the market. Successful coordination usually requires that the market is oligopolistic.

- Homogeneous products. If products are not differentiated and there are few variables that cause customers to switch between suppliers then it can be easier to ensure that the firms are not winning customers secretly by changing these variables. Thus firms can ensure that the agreed market allocation remains intact.

Differentiation means that merely collecting information on a firm's own sales may give very little information on the type of deviation that has happened and other parties to the agreement may need to monitor several features of the competitors' performance to understand if any have deviated. Differentiation also leads to each supplier being more interested in changing consumer preferences towards their product and less concerned with the actions of competitors. Some products may

behave more like complements over time. Under differentiation, the firms may have less incentive to deviate from an agreement because targeting competitors' customers may be costly if those purchasers are less interested in your product. However, differentiation also makes it harder to punish such deviation by targeting and winning the firm's customers. Innovation can thus make coordination less likely and harder to maintain because the firm with the innovative product will find it more profitable to exploit this innovation than keep to the coordinated outcome.

- Homogenous firms. When firms have similar market shares, capacity, and cost structure (e.g. range and quality) they are likely to have equal incentives, and thus it can be simple to establish a fair allocation of the market between them. This allocation must be incentive compatible for each firm to keep to it. If firms are not similar then the firm with the lowest marginal cost may prefer lower market prices than the other firms. Secrecy over rivals' costs makes it harder to find a focal point. Small firms have less to lose from being punished for a deviation and could have more to gain from trying to win the whole market if they have the capacity or ability to meet this demand. Ideally the collusive profits from coordination would be maximised by the lowest cost firm producing more (technical efficiency) but this often requires explicit agreement amongst the firms.
- Elimination of a "maverick" is the extreme example of where a merger causes the firms to become more homogenous. A maverick firm may be more innovative, have lower costs, or may be keen to expand its market share (for instance by pursuing management prestige or longer term objectives rather than short-term profits).

In order to determine whether firms may have been keeping to a collusive agreement it can be useful to consider how stable the market has been. In particular, whether firms appear to have maintained the same market share over time. Collusive agreements that have been found in past cartel decisions often rely on firms maintaining the same market share.

- Stability of demand in its extreme form allows the coordinating group to predict the sales of each of the participants to an agreement and thus any output shock suffered can only be due to a breach of the

agreement or the actions of an external party (such as an entrant). The presence of unpredictable demand fluctuations reduces the ability to reach agreement or monitor and detect deviations; requiring firms to gather more information on the offering and performance of competitors rather than merely tracking their own performance. Changes in demand or unstable price and cost levels may mean that the incentive to maintain collusion is lower. Growing demand allows a deviator to build relationships with new customers, who may be less vulnerable to being lost during later punishment, or it may encourage entry. Falling demand reduces the benefit of long-term collusion compared to the short-term gain of deviation.

- Transparency of price or other terms of sale. If firms do not have a good understanding of market demand and external shocks (including entry) it is difficult to tell if there has been a deviation on an agreement without information on the sales of individual competitors. Market data can be provided directly such as announcements on websites (for price rises), or could involve a third party (that may not be part of the collusion) including the distribution of industry market reports. The history of government regulation of an industry could create a barrier to entry. Regulation could also allow for the collection and dissemination of relevant data.

How useful data is may depend on whether the actions of individual firms can be disaggregated and how current it is (so how quickly firms can react to a deviation using this data). Even aggregate data could allow firms to understand if a collusive agreement was being maintained, especially if entrants were too small to cause the changes in the overall market. The presence of industry trade associations or even trade shows may provide an opportunity through which information on prices and output can be exchanged. More generally associations can also be a means of communicating and building links between firms that can help in reaching an agreement. Other types of market information including the presence of a (likely) entrant can also be useful to maintaining collusion.

- Vertical integration, mergers, or transactions between competitors may enable firms to monitor the level of competition or provide more market data. These can also be a means of providing payments to other firms to ensure the correct incentives. However, it is also easy for firms to

adjust their behaviour to take account of such structures and avoid detection when deviating from an agreement. They could have different prices for competitors (or cartel members) to those charged to customers that they consider will keep the terms confidential. Vertical mergers can also increase barriers to entry.

*Incentive compatibility and Internal Stability:*

If firms can communicate an arrangement between themselves and detect when it is being adhered to, the next condition for successful collusion is that firms prefer to maintain this arrangement. For this to happen the discounted future profits from coordination must be greater than those from deviation or competition. If a deviation occurs it must be more profitable for the other firms if they punish this than accommodate the deviation (i.e. punishment is credible). During a punishment phase the firm that deviated could receive the same profits it would receive under competition, but it is also possible for the other firms to inflict tougher retaliation which may make deviation even less attractive and sustain higher collusive prices (e.g. retaliation could involve temporary price wars, or selective actions targeted at reducing the profits of the deviant firm).

Under these conditions, the group of firms that reached the agreement will keep to it unless there is some external change in the market. Indicators for this include:

- The distribution and availability of excess capacity. Firms usually require excess capacity in order to deviate from an agreement (a capacity constrained firm is unlikely to have the incentive to try to expand sales). Firms with excess capacity are also better placed to punish deviating firms, by winning back market share. This is especially true if this capacity can be used at short notice, at similar cost to existing output, and utilising this capacity does not incur any fixed or sunk costs (such as upgrading obsolete equipment or training additional staff). A group of colluding firms will often all have spare capacity and this may be split evenly. Firms in competitive markets will not build excess capacity that they do not expect to use so this may be an indicator of collusive intentions.
- Frequency of interaction (sales patterns and pricing patterns). Firms have a greater incentive to deviate from an agreement if they obtain a

large benefit from this before it can be observed and punished. Customers signing large contracts by buying infrequently would increase the gains to deviation. If competitors cannot react quickly to a price cut because they set prices infrequently, then this would reduce the speed of punishment. Thus with infrequent interaction, the incentives to deviate are likely to be higher and coordination is less likely to be sustained.

- In an auction situation internal stability is provided by very sudden changes between competitors such as the rotation of the right to win the bid among the cartel members. Thus a regular pattern of bidding or winning that creates significant instability in the chances of one firm winning from one bid to the next can be a signal of collusion in auctions. There are other indicators linked to the reallocation of items and profits but analysis of auctions is not the focus in this discussion.
- Multi-market contact could increase the frequency of interaction and thus it can make collusion more likely to be sustained. Winning business in one market may happen at a different time to business gains in another market. A deviating firm may not be able to arrange to win large contracts in all the markets at once, and would risk losing the contracts in other markets once its deviation has been detected. Thus multi-market contact can act to increase the frequency of interaction.
- Structural links can make coordination more stable. Holding minority stakes in competitors reduces the benefit derived from undercutting those firms by sharing out the lost profit caused by the additional competition they face. Structural links or litigation can create financial transfers so, for instance, a firm can punish a deviating partner by cooperating less in a joint venture.
- Most Favoured Nation Clause (MFNC). These can imply that the market is already transparent and further increase transparency. If a customer is able to enforce this then that customer must have some knowledge of pricing to competitors. Monitoring of any collusive agreement only requires this most-favoured price to be known (which is already monitored by customers) and not all the prices. Variability is reduced although prices may still vary with observable factors.

A MFNC can also ensure that coordination is more sustainable because a deviation from collusion (reducing the best price) means that this price is not just offered to the new customers, but also to the existing customers. This causes profits to be lost on existing customers while profits are gained elsewhere (the customers you won). This means that deviation is less likely to be profitable in the short-run (even before it is detected and punished). However, the reverse is also true. If a deviation occurs while competitors are using MFNCs, then they will be reluctant to punish the deviation for fear of damaging their existing profits. They may also find it difficult to raise prices when they try to stop the punishment because this price rise is transparent to customers.

- Price matching guarantees can create credible commitments for firms to retaliate. The cost of monitoring and punishing a price cut may be lower if customers automatically watch for lower prices offered by competitors and claim on price guarantees if they find them. Firms that know their competitors are committed to a price matching policy may consider that they are less likely to win the customers of those businesses who can obtain the lower prices without changing supplier. Thus there may be less benefit from undercutting rival suppliers or deviating from a collusive arrangement in the presence of price matching guarantees.

Sometimes it can be useful to test whether market events involve multiple interrelated reactions at the same time. When a competitor raises its price other firms may increase both price and volume at the same time in a competitive market unless they have also faced a cost rise. It may be unusual for a firm that is competing to both raise price and reduce capacity. Thus the factors discussed here cannot be considered on their own.

#### *External stability:*

Coordination will break down if the colluding firms do not have enough control over the external environment and cannot prevent customers or suppliers using alternatives including new entrants. Some indicators are:

- Inelastic demand and the ability to raise prices. Even if there are few alternatives to the colluding firms at competitive prices, collusion will be ineffective if there are good alternatives for customers at slightly higher

prices (demand is elastic). This could be because customers can easily reduce their use of the product or there are potential imports at suitable prices.

- High entry barriers. Collusion requires that the threat from new entrants is low. If the collusion is initially successful the higher industry profits will attract more potential competitors. If entry is easy the market will quickly return to the competitive state. The history of entry in a market indicates whether future entry is possible and under what circumstances. Highly concentrated markets may indicate that small scale entry or operation is not possible given that the other firms achieve low unit costs.
- Lack of buyer power. The presence of strong buyers reduces the profitability of collusion. Large buyers are able to break collusion by sponsoring entry, re-designing the product or buying process, or harming the profits of the colluding firms in other markets where they have customer relationships. Successful collusion requires customers to have few alternative sources of supply, or be unaware of the collusion (and believe they are still obtaining competitive prices). Large buyers may have more lucrative contracts that could make it worthwhile for them to explore more complex arrangements (such as self-supply or sponsoring entry). However, they may have more demanding requirements that mean fewer reliable supply options are available.

*Summary of potential check-list factors:*

Following from some existing literature the main factors that have been considered when assessing the potential for coordination are:

Structural factors:

- Homogeneous products, lack of innovation
- Transparency of price or other terms of sale. Timely disaggregated data, industry communication, market reports, associations, and government regulation.
- High entry barriers (history of entry, minimum efficient scale).

Supply factors:

- Past cartels or a history of collusion
- Market concentration, oligopolistic market.
- Homogenous firms (market shares, capacity, and cost structure).
- Stability of market shares.
- Elimination of maverick.
- Bid rotation and patterns in auction markets.
- Available excess capacity.
- Vertical integration
- Multi market contact
- Structural links (minority stakes, joint venture).
- Most Favoured Nation Clause (MFNC).
- Price matching guarantees

Demand factors:

- Stability of demand (unpredictable fluctuations or growth)
- Frequency of interaction (sales patterns and pricing patterns).
- Inelastic demand and import restrictions.
- Buyer power (sponsoring entry, re-designing product or process, or relations in other markets).

### **The importance of considering different focal points**

This section summarises what the traditional approach to analysing collusion was missing. Collusion (in particular tacit) may be more widespread than has been found when using this approach. The appearance of price coordination is neither necessary nor sufficient for the existence of collusion.

*Observing price parallelism is not sufficient to find collusion:*

Pricing patterns do not reveal the presence of coordination. If the main focus for an authority is the market price or the price of each firm in the market, then it will always be very difficult to distinguish competition from collusion. Under both circumstances the prices of the firms may react quickly to the prices of other firms. For instance, if one firm drops its price by 10 per cent and then one of the other firms quickly follows this could be competition or punishment for a breach of a collusive agreement.

A price cut response could be a collusive punishment or competition. Given that the firm has responded quickly it may well be the case that the firms are

closely dependent and the second firm lost market share due to the price cut or was about to if it had not reacted. The price cut response could be a competitive reaction to ensure the second firm continues to meet a sales target and does not allow its share to be competed away without challenge. Firms in a competitive market may experiment with prices at times to test the response of demand and a temporary promotion may be used to determine if the firms have judged the market correctly. However, the rapid price cut reaction could also be punishment for a deviation from a collusive agreement.

*For there to be collusion it is not necessary to observe price parallelism:*

Colluding firms can still compete in some aspects. If firms are only establishing collusive arrangements tacitly it may be especially difficult for them to ensure perfect agreement on a monopoly outcome across all market segments. Thus even with this collusion it may be possible to observe behaviour coordination in one market or product that would be a deviation. When coordination is present in an industry it is still possible for the same firms to compete elsewhere, so that price collusion on one product, does not prevent competition on other products. Even if the market features or firm behaviour are not consistent with one type of coordination other focal points or communication could be used to ensure that firms compete less intensely in the market.

Coordination does not have to achieve a specific (e.g. price) goal but just to reduce competition. Firms have access to a wide range of strategies some of which could amount to coordination. All coordination attempts to reduce competition and so raise firms' prices or profits, but the rules for monitoring and punishing firms in the agreement can be based on different focal points apart from price. These other focal points have different transparency and symmetry requirements. The coordination can state how competition will be constrained without quantifying the harm to customers in terms of price or output.

Some of these possibilities for focal points could be affected by any potential merger. Merger analysis can consider different coordination strategies to see if the merger makes any sufficiently more likely, to meet the legal thresholds.

*What is important is how firms are able to reduce rivalry:*

Firms have a range of information on the market. For instance, firms will contribute to and receive trade publications; firms will go to industry meetings

with local regulators or industry associations; recruitment of staff particularly senior staff and interviews provide opportunities to gather information; or staff can have social contact including with ex-colleagues and use this to make their task of generating profits easier.

A merger of two firms that do not compete (e.g. complementary products) could enable coordination through the links created with another (multi-product) firm. Thus having greater interaction with a competitor and having more potential markets where accommodating or competitive responses can be taken. It may allow an allocation of profits that is more symmetric or otherwise easier to negotiate. In the same way, vertical mergers can also lead to an increased risk of coordination by increasing the information and multi-market contact that firms have and aligning incentives with other vertically integrated firms.

Information other than future pricing can be used to reduce competition. One way that a competition authority may distinguish the difference between competition and collusion is in whether firms attempt to influence their competitors' expectations about their behaviour. A firm that suggests to the market that a particular action by a rival has brought on (or would cause) the competitive response may soften competition more than when firms believe increased competition is due to general trading conditions. By giving these messages firms will believe that punishment has happened and they can prevent such competition occurring in future by behaving in a certain way.

One way that competitors' expectations can be influenced is via communication both in private, such as at industry associations, and publicly such as price matching promises. A price matching promise can be seen as an explicit threat to competitors that if they try to win business away by cutting price, the firm will respond immediately by matching their price and preventing them winning any business from them by this strategy. This can thus discourage other firms from competing or targeting their customers.

Identifying (regular informal) communication may indicate potential collusion. The importance of communication for not just making agreements but also for explaining the motivation of past actions or altering expectations of likely future reactions means that industries that have more informal networks where these relationships can be built may be more vulnerable to tacit collusion. In this situation a "maverick" firm that has the potential to act against the collusive understanding may be a firm that has not been talking to

competitors and does not understand the likely industry reactions to its behaviour. It is not necessary for all competitors to be aware of the agreements, but in general firms that would find it easy to breach a collusive agreement or are more financially stable and able to withstand initial punishment will often need to be involved for collusion to be sustained.

What is reasonable depends critically on the amount of information and degree of reasoning power (or computing ability) that players are assumed to have. Industry insiders can devote much more time to understanding their market and the reactions of other firms than competition authorities can, and fairly sophisticated arrangements can be created by simple rules of thumb, such as “do not enter against X, unless you have their informal approval”.

This section has introduced the idea that firms have lots of information on the market and can use this to agree focal points that restrict competition without disclosing information that is normally considered part of collusive discussions. The next section discusses the types of focal points in more detail.

### **Potential Focal points**

Colluding firms must have a way of allocating the market among themselves and of observing that firms keep to the rules of this allocation. Such an understanding does not have to state how customers will be harmed or what price and other terms customers will be offered but only needs to provide a focal point that ensures firms know the allocation and so competition for customers is restrained. The existence of any of these focal points in a market does not imply that firms are necessarily using them for coordination. Even if some of these focal points are not present in a market, it does not prevent firms colluding using other focal points.

The focal point can be used to detect a deviation from any collusive agreement and to determine how any deviation should be punished. The focal point will also determine whether the agreement is transparent enough that firms can tell when punishment has occurred. For instance, if price falls below a threshold and some firms respond by lowering prices further, do all other firms understand this action was a punishment, and who was being punished, or do some believe low prices are merely due to an external shock.

In some discussions the term focal points can be used to describe any way of reaching an agreement between firms. Thus if firms can be persuaded that a

new arrangement is better for all firms than the current level of competition they may adopt this. Similarly if firms can engage in cheap talk, or bilateral communication they can suggest an allocation or influence expectations. The status quo may be considered fair whether that is based on price differentials or capacity shares. Regulations can provide a clear delineation for how a market should be split. Here the main focal points will just be based on the type of data that firms need to gather in order to determine that the agreement is in place. Firms do not necessarily need explicit communication to reach any understanding, this could just occur during repeated interactions over an extended period. Thus without explicit communication a competition authority may not be able to prove exactly how a particular allocation was agreed.

*Potential focal points for dividing the market include:*

**Price or output:** In some markets transaction prices are known or the industry publishes output by individual site or supplier, this information would make these transparent enough to be a focal point. Even if this information is not automatically available the industry could reach a coordinated outcome if competitors can verify these figures.

The focal point is about issues that customers care about directly (the price they are charged or the volume they can purchase) so the customer harm is explicit in the collusive agreement.

**Geographic:** If there are local differences in rivalry, such that there are some areas where at least one firm has market power, then these differences can be used to control the extent of competition in the market. Geographic allocations may be particularly important where some local markets have only one firm. Local monopolies can be the most efficient arrangement, so their presence on its own is not an indicator of collusion or anti-competitive behaviour. However, competition authorities often find it difficult to establish the efficiency of the market structure so may not be able to rule out concerns based on efficiency. Even if the market did not support multiple suppliers and competition was not viable in the long term, coordination could still be harmful. A new innovative supplier may want to compete to win the local monopoly position and provide a better service. This type of competition would be stopped by collusion using a geographic focal point.

Markets that are susceptible to geographic focal points are usually where supply requires physical presence, transport costs between areas are high, and firms do not tend to serve certain routes or local markets.

**Customer:** Certain customers in a market can be significant enough that an understanding can arise amongst suppliers of which ones have been allocated to other firms. This can occur even tacitly without explicit contracts. If large customers switch infrequently, or customers tend to use one and only one supplier, then the allocation can be particularly transparent. However, if customers are changing requirements regularly, or tend to use a separate supplier for each tender, then collusion may require explicit agreement or communication in order to establish a continuing fair allocation.

**Product/Customer type:** It would be theoretically possible for firms to identify other features of the competitive offering as a basis for sharing the market. Some of these product or customer features would be transparent in many markets.

However, a product or market segment allocation is unlikely to be feasible. It would be difficult for the firms to agree on a product allocation (all firms would want to be allocated the market niche with the best growth prospects). It would also be difficult to punish a deviation because if a firm had given up its capacity or research investments into a product area as part of the desire to differentiate itself from its competitors, these decisions are usually irreversible. Thus it would be costly or difficult to reverse these and re-implement a push into an abandoned product line in order to punish a deviation.<sup>34</sup>

A customer type or industry sector allocation could be merely a convenient way for firms to describe a customer allocation without naming individual customers. In this situation, there is no (or minimal) specific investment required to adapt your product to one industry sector compared to another, but rather than naming all energy firms it is just established that one colluding firm will supply them all. This type of focal point works just like a customer one.

These product and other focal points may be possible but they are unlikely to be as effective or prevalent as those based on geographic or customer sharing. Product or customer type allocations are not discussed any further.

---

<sup>34</sup> The US merger guidelines have also referred to “parallel accommodating conduct” which it has been suggested could relate to a merger increasing differentiation and thus leading to a softening of competition, but this will not discuss collusion through differentiation in strategic direction.

## Common features in all coordination

Although the focal point that is used in different collusive arrangements may affect how the firms monitor and punish each other, the importance of some market features or checklist items will remain constant under any focal point.

In the joint OFT and Competition Commission Merger assessment guidelines three conditions must be met for firms to establish coordination in a market.<sup>35</sup> 1) Reach and monitor coordination, 2) ensure internal stability, 3) ensure external stability. The focal points available in a market will influence what is required for firms to meet the first and second criteria. The market features that are relevant to the third criteria are fairly constant across the different focal points. For all potential focal points it is still the case that:

**Previous coordination** makes coordination more likely. If firms have been able and willing to agree a means of reducing rivalry it is more likely that they will do this again in the future (even if it is not an explicit agreement). This indicates that all three conditions for coordination may be met in the market.

If **entry** is easy, such that there are low sunk costs or increased prices will attract good substitutes then there is no ability to raise prices. However, if entry by firms outside the agreement involves sunk costs then the colluding firms may be able to retain control and prevent permanent entry by a rapid response to cause the entry to be unprofitable for the entrant and deter future attempts. If buyers in the market segment that is subject to coordination have strong external options, then there will be no incentive to raise prices. If demand is highly price elastic it will undermine coordination. These aspects would indicate whether the third condition is met.

Coordination is easier in highly concentrated markets. A merger increases the interdependence of firms with the merging firms obtaining a much larger impact on the others after the transaction. Thus there is a greater incentive for firms to try to lessen the impact of competition from this firm via collusion or discussion.

---

<sup>35</sup> CC/OFT, Merger Assessment Guidelines, September 2010  
[http://www.of.gov.uk/shared\\_of/mergers/642749/OFT1254.pdf](http://www.of.gov.uk/shared_of/mergers/642749/OFT1254.pdf)

Increased concentration will also increase the transparency because the larger impact of a more significant competitor will be more obvious to the others in the market. Very large firms can sometimes gain a price leadership role where firms find it obvious to understand the pricing practices and objectives of a significant market player and decide to follow the strategy they initiate. A merger to duopoly in particular will increase transparency because any variability in the sales of one firm is very likely to be due to the actions of the one remaining firm (as long as the level of uncertainty in market or customer demand has not been changed by the merger).

Concentration can be relevant to criteria one (via transparency) and two (in interdependence). Concentration may even indicate that small scale entry is not possible so that criteria three is more likely to be met.

Any innovation or other demand shocks to the coordinated segment make tacit agreement harder. If firms have reached an allocation (condition 1), but then the fairness (condition 1) or incentives to keep to this (condition 2) have changed, it can no longer be assumed that coordination could occur. The more regularly the market changes and the more unstable the incentives then the less likely it becomes that the firms will be able to negotiate an agreement that maintains suitable incentives for all of them. Innovation may also allow new entrants to replace existing ways of doing things and so weaken the control over condition 3.

Agreement on a collusive strategy can be more difficult to establish tacitly than explicitly. It may be easier for firms to make an explicit public commitment to price matching than to convey this threat to respond to competition to each of the other firms in an implied way. Any counter-proposals of alternative arrangements may take longer to propose to each firm and negotiate when they are done so sporadically or bilaterally rather than in a single group meeting with organised chairing in secret. Thus a tacit agreement may require more communication. Although, all of the communication will be more subtle than explicit clandestine meetings. Communication opportunities will help overcome conditions 1 and 2 and can even allow planning to help condition 3.

Socially **beneficial communication** (e.g. planning helpful industry environmental regulation) needs to be very carefully monitored to prevent discussions straying into other areas that would reduce strategic rivalry. This is difficult for regulators to check. A wide range of communication between

competitors could be used to reduce rivalry. If tacit coordination is suspected in a market it may be useful to consider what avenues of communication could be supporting the agreement.

### **Coordination with Price or Output target/focal point**

These are means of organising collusion in a market that are most often discussed in models. In order to distinguish them from the methods discussed later, this section reviews their key features.

Under a price focal point, firms observe the market price or the price that the colluding firms are charging and reduce their price in punishment if that price falls below a set threshold. In an output focal point, firms monitor their sales levels against the predicted sales they should make if the collusive agreement is being followed. If their sales fall below this level they believe that others are not keeping to the agreement and so expand output and adjust price or other terms to ensure they increase sales (and compete more aggressively). If the overall market demand is not very predictable or transparent then the firms may need transparency over the output or sales of their competitors in order to establish if a collusive quantity agreement is being maintained.

Reaching an agreement can be difficult when using these focal points. The proposed collusive price or output level for each firm may be based on an assumption that the current (competitive) market shares (outputs) are to remain constant in the coordinated period. However, even if this was proposed in good faith it would not guarantee that bargaining between the firms will reach an agreement because each firm may have different ways to determine market shares (e.g. volume or value or time period), or may prefer to delay agreement until its position has improved. Selecting a price or output level may be difficult because the optimal target may vary over time (e.g. with cost or demand shocks), and firms could disagree on the desired price based on their own costs.

To use these aspects as a focal point they must be transparent. Thus firms know others' prices, are able to determine them from market data (such as sales), or just sell at a set market price. Industry or firm level output data can be very detailed and up to date and may even be collected by state bodies which can give the necessary transparency for output focal points in some markets.

During collusion it is the firms that decide how to split up the market rather than competing and allowing customers to make this decision. If the allocation established by fixing relative prices or outputs is undermined by firms winning business through other means then coordination can break down. Firms that seem to be following the agreed price cap could offer additional services bundled into the purchase at no extra cost to win additional orders. Firms with market share limits may serve the allowed number of customers but select the most valuable customers taking a larger value share. The incentives for customers to change supplier must be completely controlled by the colluding firms for collusion to be as stable and cost effective as possible for the firms.

The level of transparency required for these focal points thus includes the need for the products to be homogenous, or alternatively products where the level of differentiation between firms is stable. This ensures there are limited (non-price) incentives for buyers to switch while price differentials are fixed and prices are raised. If the non-price (differentiation) factors are not immediately observable, then coordination using these focal points, combined with the required information gathering can be difficult to do tacitly. If there are too many non-price differentials that must be kept constant in a coordinated outcome it can be difficult to agree rules without explicit communication even if the features can be monitored.

The models of collusion, based on these focal points show that there are profitable periods for all firms during the collusion followed by a period of high profits for the firm that deviates as soon as it deviates from the agreement. Once this deviation is detected and firms react and punish it then the firm that deviated earns lower profits (than during the agreement period) until they have made enough losses (at the relevant discount rate) such that deviation was not beneficial for them. Punishment of a deviation usually affects all firms in the market (not just the one that deviated) even if only one firm was responsible for the price cut. It is important that even though firms that have followed the agreement lose out when the deviation occurs (both initially and during punishment) that the benefits of collusion to them still make it worthwhile for them to incur the pain of punishment so that this response is credible.

The key feature of these models is that deviation is immediately profitable for the firm that deviates. There are no fixed costs and deviation is just a matter of producing more at the marginal cost, which is below price, without requiring additional capacity. The degree of punishment can depend on the degree of

deviation to try to maintain some level of coordination (price above competitive level) to some extent.

Whether deviation can be prevented depends on how quickly it can be observed and reacted to and how much of a loss can be imposed in the punishment period. Greater transparency between competitors means that deviation is detected faster. This allows the punishment response to occur sooner and lowers the gross profits from deviation during the initial period and so coordination becomes more stable.

The extreme version of a response to deviation is an automatic response where the punishment price or output changes in response to an increase in competition before customers have a chance to observe that there has been a change. In the case of price cuts this could be implemented by an explicit (public) price matching commitment, i.e. as soon as customers observe that a rival has cut their price they are also aware that they can obtain that same lower price at the other firm.<sup>36</sup> In some markets firms have used pricing where they have offered to sell at an even lower price than the competitor if that competitor makes a price cut (such as double the difference). This could relate to a more aggressive punishment strategy where firms threaten to reduce prices by even more than the cut in competitors' pricing.

However, often when these statements are made in retail markets, many customers will not be aware of which products are covered by these rules. Customers have behavioural biases and may not want the risk of finding out that internet or reduced range, end of line clearance products, or other exceptions are not included and so may find it easier to buy from the cheaper location than waiting to return to their normal supplier, hoping the product is still available and then claiming on the price guarantee. If customers are not willing to go through this process of claiming on the price guarantee then the reaction of the firm to the price cut by its competitor will be less effective using a price guarantee than if it just reduced the advertised price.

The models on collusion based on this approach often emphasise the need for symmetry. The models require that firms must be very equal in order for it to be in all their interest to restrict competition in this way. Symmetry usually

---

<sup>36</sup> Punishment can be supported by public statements – e.g. that any price cuts by others will be matched. Such statements can occur in retail markets.

depends on firms having equal costs or market shares and capacity so they share the benefits equally. If small firms can expand quickly and are able to gain a large increase in market share by deviating from collusion, while risking losing only the high profits on their small current market share, then collusion will break down. These models often do not consider fixed costs formally so it often appears the models are assuming that small firms could behave in this way of rapid expansion. This assumption of rapid expansion may be appropriate for some homogenous goods markets where customers are willing to move between equivalent unbranded suppliers, although even small firms will need a large capacity.

As well as the risks of increasing symmetry, mergers can often give rise to coordinated effects under these focal points because of the elimination of a maverick. In all of the focal points discussed (including geographic and customer) a maverick firm may be considered such because it has a particular incentive for a low price. For instance it may want to improve the competitiveness of its downstream operations or it may have a new innovative product that it is trying to grow or has some network effect. It could just be that the management are such that they have adopted a low price strategy for personal reasons. In particular, any aspect of a firm that makes it more likely to want to expand and grow than its competitors could mean that it is a maverick. So if a firm has low costs it will want to price low and increase output. It will also have greater incentive than its competitors to expand into new geographic and customer markets.

### **Coordination with Geographic targets**

*When geographic focal points should be considered:*

In order to assess the importance of geographic focal points, it is important to understand which markets may be vulnerable to these arrangements. In particular coordination using geographic focal points could be possible when the same firms compete across many local markets, and some of these markets have different competitive conditions. The firms may develop an understanding to limit the extent of direct (actual) competition in some of those local markets. An industry is particularly vulnerable to geographic focal points if some local markets have only one major or national operator and the other major operators would face some barriers to entering into these local markets. Either because of fixed costs or because local demand is not enough to support additional large operators in the long term.

Lack of entry into a local market is the normal default position and so, on its own, this cannot be taken as an indicator of collusion. Similarly, if some entry is observed in a market, this does not mean that geographic focal points are not being used to soften competition, because the entry could be by a firm, or on an area that is not part of any agreement.

*Collusion with geographic focal points:*

An agreed allocation of a market based on geographic boundaries may be much more obvious to competitors than cost levels and so more prone to being agreed tacitly and more transparent when being monitored. Physical presence (geographic location) in an area is usually transparent. The focal point may merely state that the current (historic) split of local markets should be maintained (the current competitive and future coordinated geographic allocation will be the same and relatively stable over time). The main difference between these competitive states once the understanding is in place is the level of threat posed by potential entry. Under the collusive agreement the colluding firms avoid entry into others' areas.

Geographic focal point formation requires firms to know which areas are reserved by competitors and will be defended with retaliation. If the geographic split is more complex, more communication may be required to establish the allocation. In many industries the managers will have become expert in the structure of the market over decades and so may still be able to establish complex arrangements tacitly (without an explicit agreement).

The current competitive geographic allocation or location of operations (status quo) may be relatively stable and for the firms to negotiate keeping to this outcome does not require them to make assumptions about confidential data. This is different to price focal points based on unobservable costs where the competitive and collusive level or target can be constantly adjusting to cost shocks. The ideal monopoly or collusive price could be different for each firm and very different from any price charged before coordination started. Under geographic focal points, ensuring an equal allocation is based on (publically) observable characteristics, like places or the population density of those places, and not unobservable features such as firms' costs, sales, or prices. Confidential data does not have to be exchanged. Tacit agreement or suggestion of a geographic focal point may be more likely than for a price focal point.

If there is a deviation from a geographic allocation (i.e. a coordinating firm enters into an area reserved by another coordinating firm), then not only the fact that there has been a deviation, but also the identity of the deviating firm can be easily established publically. Punishment can be targeted at that firm by counter entry into a local market that is particularly profitable to the firm that deviated. Alternatively punishment could target that firm's operations in the route or area they expanded into (this would appear to be a very usual response in terms of defending against entry into a market where the victim of the deviation is strong). These strategies limit the costs of the punishment to the punishing firm(s) because they do not waste resources expanding across the whole market and entering into the areas reserved by other firms. The remaining firms can continue to coordinate unaffected by the punishment of one firm in a few areas (or they could also carry out targeted punishment against this firm without reducing their profits on their existing markets).

In the price focal points section, it was explained that some economic models of coordination assume the firm that deviates makes profits in the first period. In those models no fixed costs are incurred when lowering price and increasing output. However, in markets with geographic allocation, the deviation is not merely producing more of the same output. The output is being produced in a different market where customers have not previously been able to buy that product and the supplier has not been competing.

Extension into new geographic markets (or customer requirements) may involve some fixed costs. An expansion by a firm deviating from a collusive agreement may have been profitable in a competitive market, or in a market where there was no reaction to the expansion by competitors. The fixed costs mean that even under competitive conditions the expansion may not generate a profit initially (i.e. only after the market or demand has been built up does the increase in sales from the expansion pay for the original investment).

This delay in profitability can make it easier to sustain collusion via punishment. When the colluding firms find out about the deviation and react to it, the deviating firm may still be in a position where it has made a loss, so far, from the deviation. In this case, it is the same as the firms reacting and punishing immediately (or in anticipation) of a deviation. The punishments made by other firms may also take a while for them to generate sufficient demand to mean that they generate the long-term expected revenues for the firms doing the punishing (or get full efficiency), but they will have an immediate impact on the demand for the deviator's operations (for instance by

lowering price and willingness to pay). Thus punishment can still be carried out promptly despite the delay in deviation profits. Thus it is unlikely that firms that are punished in this way can make a profit by entering reserved routes and they will be encouraged to keep to any understanding.

#### *Merger impact:*

A merger could cause geographic coordination to become more likely. For instance a merger could remove a maverick. Normally a maverick has low variable costs, but in this model where fixed costs of entering new routes can be non-trivial, low fixed costs of route entry may also make firm a maverick. If a firm was renting a lot of its assets it may be able to enter and make profits in a reserved route and then exit again when punishment intensified. It may still generate sufficient profits to be incentivised to carry out such short-term entry.

There are other aspects that could be important. A firm may be regarded as a maverick if it was not a member of a trade association or did not otherwise get involved in communication and thus did not know the local agreed allocations. Failing to discuss the understanding with competitors may make it more likely to enter into areas that others would not. Alternatively the maverick may be based in an areas that are particularly valuable to other firms (pose a high risk to them) and have lower costs associated with expanding in those high value areas.

The firms in a market may not be symmetrical. Some firms may not be vulnerable because they do not have areas at risk of punishment. A merger that makes the geographic boundary between two firms more complex could still make coordination more sustainable by increasing the credible threats one firm has against the most profitable markets of another. This would be particularly likely in markets like buses where presence in the region or nearby makes it easier for a firm to enter any specific local market (or route). By acquiring a small operator with a depot in a different part of the city an operator may greatly reduce the costs of running buses on the key routes of a coordinating bus company and thus discourage that firm from trying to expand on to its profitable routes by the increased threat.

Does this mean that all new entrants to an area will be mavericks? After all, if deviation is by a new entrant they will not have existing local monopolies that could be punished. Not necessarily. New entrants to an area may only be able to grow slowly because they have limited capital resources. They may have higher costs than existing firms associated with any expansion including fixed

and sunk costs, particularly if they are smaller firms that do not have spare assets or management resources from a national pool or established procedures for setting up new operations. Any deviation gains may be short-lived because they may not have the resources to withstand punishment for long and, the total profits they gain from the entry can be negative. Thus if these firms cannot gain much in additional profits by deviating and trying to expand slowly, they may need relatively little compensation for resisting expansion. Entrants may prefer to coordinate as long as they have some small local operations with positive profits that are reserved for them.

In order for a regulator to distinguish a competitive response to increased competition (such as market share recovery), from a potentially anti-competitive response such as punishment, one indicator may be whether the market share recapture is targeted at the firm that originally increased competition. In a competitive market it is normal for a firm to want to respond to a loss of its market share or sales, but this response is on the basis of expanding profits and sales. The firm will normally go after the most profitable or easily available business opportunities wherever they are. In a collusive model, the firm is not just going after any business, they are inflicting a punishment. Thus it is important for the new business to be at the expense of the firm that caused the loss in its original business.

Targeting punishment against a firm or area is easier in geographic or customer coordination. If firms have been allocated certain areas where they will make more profits, then those areas are open to retaliation. Targeting this area can also make the punishment more severe (because it the particular firm that deviated is impacted more quickly) while being less costly to the firm doing the punishing (which should avoid harm to its own reserved areas). This will thus increase internal stability.

### **Geographic focal points in the Bus Market**

An example of where firms may have been using their geographic location to limit rivalry is in the bus market in North East England.

After privatisation of the UK bus market many local areas had operators with a strong presence (i.e. the former state owned monopolies that were now in private ownership). Competition should have encouraged cross entry where these local operators entered into adjacent areas and also faced entry from other local operators. This type of entry should be cost effective in the bus

industry because entry onto routes in a local area can be done at a lower cost if the entrant has a local depot or network. The entrant will not have to pay overheads to establish somewhere to maintain and clean their buses and they will have less “dead” mileage to pay where the buses are not earning money but are just being driven to or from the depot and the start of the route each morning or evening.

The UK Competition Commission Bus market study, found evidence of possible coordination in the NorthEast (around Newcastle upon Tyne).<sup>37</sup> According to the case study into this evidence, two firms, each with bus depots in Newcastle in close proximity, may have had more than 20 contacts per year.<sup>38</sup> These contacts could have been direct phone calls, or meetings as part of associations or industry gatherings. This communication helped to ensure the bus firms would understand their rival’s likely responses to entry on certain routes. There is no evidence that they discussed prices, costs, or other (non-geographic) focal points.

Bus firms in this market reached and monitored the agreement by observing the routes each firm operated and communicating to key competitors which routes were core to their network (reserved) and would provoke retaliation in response to entry. This core territory was mostly determined by the historic allocation. The allocation only had to be understood by some competitors. The bus operators retaliated against significant entry either on the same route where the entry had occurred or the core routes elsewhere in the region of the operator that had deviated. Bus companies are managed locally by a regional operating entity and so the understanding was between regional level management of the different bus companies.

The arrangement was internally stable because firms with local depots that could easily enter a rival’s core routes were discouraged from this action by the punishment response this would trigger on their important routes in the area. It was important that these large firms understood the routes they could

---

<sup>37</sup> CC Local Bus Services, Addendum to provisional findings on geographic market segregation and operator conduct [http://www.competition-commission.org.uk/inquiries/ref2010/localbus/addendum\\_to\\_provisional\\_findings.htm](http://www.competition-commission.org.uk/inquiries/ref2010/localbus/addendum_to_provisional_findings.htm)

<sup>38</sup> Annex 1 para 144, 70 contacts in three years.

not enter because it would be difficult to remove them from one of these routes, if they entered in error, due to their strong financial position.

The arrangement was externally stable. Smaller firms did not have profitable local networks at risk of punishment. However, these small firms incurred greater fixed costs in entering a core route and were less able to withstand aggressive competition after they entered. Thus new entry did not pose enough of a risk to undermine the arrangement.

Some of the internal documents discussed different strategies for one of the parties to maintain these arrangements. For instance, there was a strategy of 'shield' where the plan was to increase the spending on their existing routes and make them less vulnerable to entry (deviation) by the other firm. This included upgrading buses and increasing frequency. There was a strategy of 'sword' which required entry into nearby markets of the other firm and so could be used either as a deviation from the understanding or as punishment response if any deviation did occur.

The firm also discussed a strategy called 'spears' where the coordinating firm acquires small firms with depots in its rival's territory. The spears strategy was to seek opportunities to extend competitive action to the other firm's core urban areas that were currently beyond reach of the firms existing depots.<sup>39</sup>

These spears acquisitions would make the geographic boundary between the core routes of the coordinating firms more complex (which may require more communication, although an existing understanding of the importance of these areas was the reason for the acquisition). The purpose of spears was to increase the credible entry threat the firm would have against its rival's key routes. If the firm was able to inflict a larger punishment over a larger area by efficiently running buses from key depots, then the losses the other firm could expect to suffer if it deviated would be larger. The co-ordinated understanding would thus become more stable and less likely to be violated. This is an example of multimarket contact increasing scope for coordination. By extending the geographic markets where both regional bus operators are active (or could be at low cost) any one deviation profit appears small compared to the potential punishment in many markets or routes.

---

<sup>39</sup> Annex 1 para 78

Thus one way a merger could make a tacit understanding more stable or effective would be to provide a credible entry threat to retaliate against a competitor and balance the power in a market.

### **Coordination with Customer targets**

Another aspect of the competition in a market that may be very stable and firms in that market may find transparent, is the key customers served by each firm. In some industries some of the largest customers will have long term relationships with their suppliers and these may even be the sole supplier to them of this product. It may be easy for firms to arrange to not compete for the key customers of their competitors in return for facing less pressure to compete for their current customers. Such an understanding may not require an explicit or written agreement. For this focal point to be possible requires firms to have some significant long term customers.

The understanding may be limited just to the larger customers in an industry if these customers do not have sufficient alternatives to the colluding firms (for example, they cannot self-supply or import). If many firms are single sourcing, then this will increase transparency in a market and enable a better understanding of the customer relationships to emerge and so an understanding between firms can affect more of the market. If the effect of collusion is limited to only a few firms such as the largest ones then there must be something to stop these firms losing significant share to other purchasers of the input that are not facing higher input costs. This could be because the larger firms have lower costs elsewhere or they may be in a different market segment to the smaller (maybe specialised) purchasers.

In order to follow this focal point, the firms form an understanding that certain customers are allocated to particular firms (or shared between certain firms). Firms can undertake any competition that they want in the market as long as they do not break the understanding and take one of the reserved customers from the other members of the collusive understanding. To realise that there has been a deviation does not require the victim to know what price deviation occurred, such as what price was offered to the lost customer, but only that a particular customer has been lost to a competitor and has not left the market. When a reserved customer is lost (switches to another coordinating supplier) it may be possible for the firm to detect which competitor has won the customer (who they switched to). Thus any punishment can be targeted on

that firm by approaching the same customer or the other customers of that firm, which may even be in the same region where the deviation occurred.

This type of punishment (where tailored offers are made to specific potential customers) can be kept separate from the rest of the market, because other customers will not be aware that these offers are available. Thus competition for the customers of the firm that deviated does not have to harm the other suppliers in the market because their customers are unaffected. Collusion in the rest of the market with the other firms does not have to be affected. This type of punishment can be done with minimal additional capacity because a firm that has lost a major customer merely has to target growth in sales at a couple of customers of the firm that is being punished. There is no need to flood the whole market with products.

A merger could make a customer allocation understanding more likely. Eliminating a maverick is again one option, and in the same way as geographic focal points, in order to participate in a customer focal point firms must engage in communication of some sort to establish which customers are the reserved customers. Thus firms that do not participate in communication can be mavericks.

If there are long-term contracts enforced in a market such that customers cannot move to a cheaper product mid-contract then this can create complexities. These have two impacts. They increase the incentive to deviate because each customer gained can be more valuable. However, they can also limit the growth a maverick achieves before being punished because there will be few customers available to win. The market will be more transparent if there are such contracts because the relationships between suppliers and customers will be clearer. If only one firm has long term contracts with its customers this firm may be a maverick because it is less vulnerable to punishment or retaliation than the other firms in the market and so more likely to deviate from the understanding.

In some markets customers require a combination of suppliers that can provide a full range of products. Some of the larger suppliers may be able to provide a full range on their own and thus attempt to achieve a position as the sole supplier at a customer. However, smaller suppliers may only supply some of the required range and so tend to end up being one of a few suppliers to a customer. If a sole supplier to a firm is replaced by more than one supplier, it is not clear to the firm that has been replaced which of the new

suppliers reduced the price or increased competition to cause that option to be selected. Thus it is harder to tell which firm deviated from the understanding.

Removing from the market firms that rely on multi-sourcing by customers can increase the transparency firms have over any deviations or customer switching incentives. This will allow punishment to be targeted more accurately. If this removal of a competitor is done via an acquisition it may also increase the barriers to entry for other firms with narrow product offerings. The fewer suppliers that are keen to offer favourable deals to customers to encourage them to split their requirements between two suppliers, the less likely customers will choose these options. Other suppliers will all be making discounts to encourage sole supply rather than to encourage multi-sourcing. Thus if a merger causes the ranges of the products to be more symmetrical (particularly where sole suppliers are often chosen), or eliminates a firm that was making the market less transparent with fewer sole suppliers, then it may increase the risk of collusion.

### **Customer focal points in the Ready-mix Concrete Market**

An example of where firms have been allegedly tacitly allocating some customers among themselves is the ready-mix concrete market.

In 2012 the Competition Commission (CC) found during a merger inquiry that the cement markets were at risk of coordination and the novel vertical aspects of the market led to a divestment not only of the upstream operations but of a network of downstream production sites.<sup>40</sup> The market had exhibited several warning signs of coordination. Price and margin had risen even as excess capacity had increased when demand was falling in 2007-2010. There were stable shares of production despite shocks, with changes to demand and industry structure. The econometric analysis did not show any local impacts of competition, in particular the presence of competitors Hansen or Cemex within 50 miles did not reduce the price of cement. Several producers' internal documents said vertical integration and the merger had a stabilising effect. Punishment in the market could involve upstream price reductions (targeted to

---

<sup>40</sup> Bon, Crocioni, Sala. (Dec 2013), "There is always a first time: Coordinated effects via Vertical Structural changes in Anglo/Lafarge", Competition Policy International.

avoid harming their own downstream operations) or reducing downstream prices.

If competitors support a merger, tend to target any competitor that wins a contract or appear to aim for a constant (rather than increasing) market share then this could be a sign of potential concern. Refusals to quote or supply and limited marketing to customers served by competitors can be indicative, but may be difficult to distinguish from other reasons for not bidding.

The merger made reaching and monitoring coordination easier because it reduced the number of firms with each having a larger incentive or market share. The acquirer could also use the extra downstream information to detect deviations (even if its small downstream network pre-merger meant this had not been worthwhile).

Internal incentive would be easier when more vertically integrated with all three post-merger having an equal risk of punishment (taking account of the internal or protected sales). It would be easier to target a deviating firm in downstream areas with the larger downstream network. The acquirer was not likely to cheat downstream due to the larger gains upstream.<sup>41</sup> The merger may also have made upstream unit production costs more equal.

The merger of the UK operations of AngloAmerican (Tarmac) and Lafarge via a joint venture was referred for a phase two investigation partly because it was considered that there was a realistic prospect of the merger creating or strengthening tacit coordination in cement. The Competition Commission found that coordination was also a concern at second phase and required the divestment of a vertically integrated cement producer with downstream ready-mix concrete operations. The divestment was intended to leave the UK cement and concrete markets in a similar competitive state as they would

---

<sup>41</sup> The acquirer would now have fewer customers to attract by deviating upstream due to having lower spare capacity while competitors had the same number of customers that could be won by deviating (the integrated target firm was supplying most of its requirements internally). If coordination was pre-existing it did not include the target who was acting more like a price taker in the competitive fringe and was generally near full capacity. The merger would remove the target as a fringe external competitor (that could have further increased capacity in the mid to long term).

have been without the merger, but allow the other aspects of the joint venture to proceed.<sup>42</sup>

The merger parties were two of four vertically integrated UK cement producers. Cement is used in ready-mix concrete, blocks, and tiles. In the market there are traditionally long-term customers where a single cement producer can supply a significant customer with all their cement for many years with only rare price negotiation. There had been complaints of refusal to supply and parallel pricing by suppliers with some customers believing they were allocated to suppliers. Margins in the industry were relatively high and stable.

At first phase the OFT found that cement transaction prices did not appear to be transparent. This was despite the fact that several cement suppliers seemed to send letters to all their customers at the same time of year announcing similar price rises across all firms that always resulted in price rises. The cement producers could tell what price they (or their joint ventures) were being charged for cement when they were buying from the competitors for their downstream operations (or were selling to them) in cross purchasing. However, this would not necessarily indicate that the same prices were charged to independent customers. There was some detailed but possibly incomplete information on output of particular plants but with all the internal demand, stocks, imports, and uncertainty over market demand this did not appear to result in a stable transparent market. Thus it was not possible to detect deviation from a collusive agreement from these price indicators. It was not clear how a price focal point would work in this market. In order to reach and monitor coordination firms may have been relying on detecting customer switching.<sup>43</sup>

Some of the firms in the cement market had relatively limited amounts of spare capacity. However, collusive arrangements could still be internally stable even if capacity was allocated unevenly because punishment could be

---

<sup>42</sup> <http://www.competition-commission.org.uk/our-work/anglo-american-lafarge>

<sup>43</sup> OFT, Decision proposed joint venture between Anglo American plc and Lafarge S.A. (ME/5007/11) [http://www.of.gov.uk/shared\\_of/mergers\\_ea02/2011/anglo-american-lafarge.pdf](http://www.of.gov.uk/shared_of/mergers_ea02/2011/anglo-american-lafarge.pdf). There had been price letters and customer allocation claims in other products but these were considered less binding and concerns were lower.

targeted specifically against a firm that deviated by gaining contracts from its existing customer base in the coordinated segment. The firm that was doing the punishing would usually have lost some sales due to the initial deviation and would be mainly replacing these lost sales by winning some business from the rival that was responsible so would face minimal cost (or capacity requirements) from this. The punishment could be in the same local area where the deviation occurred to increase transparency among the competitors' sales staff in that area. In fact the OFT considered that this punishment could work following a tit-for-tat strategy where losses are immediately (next period) matched with a punishment to increase the impact they would have. Tit-for-tat maintains the possibility of future collusion by allowing the firm that deviated to be rewarded by restarting the arrangement as soon as it starts to coordinate (as long as it has not made a profit from the deviation).<sup>44</sup>

Only a few examples of switching by ready mix customers were observed and these examples may not have been evidence of actual competition or even punishments. The switching may have been due to coordinating firms adjusting supply patterns (reducing transport costs) as industry capacity was reduced and suppliers moved production to different regions. Thus the customer allocation between the domestic cement producers may have been very stable and transparent over time.<sup>45</sup> This is especially true because of the level of chatter in the industry and meetings between the producers where major customers could be discussed.<sup>46</sup> If firms can agree a lessening of competition for their customers they have more freedom to set higher prices

---

<sup>44</sup> As above. Paragraph 327 states that the punishment piecemeal and 330 says it could be tit-for-tat. The possibility was also considered that the customer allocation could be geographic, even if just for larger customers (paragraph 271). There was however evidence that Lafarge supplied some customers close to where competitors were based so customer allocation appeared clearer (paragraph 319).

<sup>45</sup> As above. At paragraph 328 it is noted that few (large) ready-mix concrete customers switched. It is possible that a few instances of switching could have been realised punishment that was needed to maintain the agreement. These episodes of punishment would not result in an overall fall in prices affecting all customers but just a retaliation involving a few customers

<sup>46</sup> As above. At paragraph 315 of the OFT decision is a discussion of stealing too many customers given the industry tacit understanding and stable relationships. The "chatter" that allows firms to know each other's strengths in different areas is discussed at paragraph 297. Everyone knows who supplies whom and refusal to supply certain customers can be monitored despite price dispersion (paragraph 296).

to those customers without restraint, even if they have not agreed what those prices will be. In other words the “tacit agreement” in essence was that if you steal too many customers from us we will target your business and steal your customers.

Even if an agreement was based on a customer focal point price announcements could still be useful. Price announcements could be part of gaining tacit agreement and indicating the benefits of any collusion, it may also help to gain support for the plans among the coordinating firms because a deviation from the understanding by not sending a letter would be detected and would indicate potential risks of other deviations. The letters help the members bargain with their customers. Customers can see no option but to accept the price rise in the face of general industry price pressure so investigate potential outside options less thoroughly.

For the UK cement producers their largest customers may be in a different downstream market to many of their other customers. The largest customers may be those that have large scale economies and produce ready-mix concrete. Many of the other cement customers could be making blocks or tiles at a lower scale or using less cement. Ready-mix concrete producers may have fewer alternatives outside of the domestic producers because their process may be less suitable for using imports. Ready mix producers require greater volumes reliably at short notice and at high quality because their output (concrete) is needed at specific times and cannot be stored. Thus it could be possible for cement price rises to be externally stable even if the effect was limited to these larger customers. Such an effect would not be undermined by entry (due to high capital costs), imports, or competition from buyers that are not affected by the price rise (who are not able to produce ready-mix concrete).

The merger that was considered in this case may have made any coordination more stable. The smaller cement producer of the merging parties was Tarmac. Tarmac had a greater interest than other domestic cement producers to keep prices low, because it was a net buyer of cement for its large ready-mix concrete operations. Tarmac also had relatively efficient and modern cement production facilities and had scope to expand these to meet more of its cement requirements and increase industry supply. The merger would have eliminated Tarmac’s need to buy cement on the open market or expand its production, because it combined its large internal demand with the largest cement producer that had very little downstream operations. Thus all

firms would have a similar demand and supply balance post merger. The merger would have removed from cement production a firm that had a preference for low cement prices because of its position as a net buyer of cement. This meant that Tarmac was less likely to act as a maverick in the future and the merged firm would have similar incentives and downstream operations as the remaining domestic producers.<sup>47</sup>

As the OFT noted, the coordination in this market did not have to be complete and there was no sharp line between complete collusion in the market and none. All that was required for the merger to be problematic was that the merger could make existing tacit collusion tendencies stronger and make the potential for coordination stronger or more reliable in future.<sup>48</sup> Although there was still some asymmetry post merger the market would be more symmetric than before. In this case the customer allocation provided the monitoring and transparency for an agreement, the concentrated market with large numbers of customers that could be used for punishment provided the internal stability, and the limited outside options for customers producing ready-mix concrete provided the external stability.

### **Competition Commission Aggregates Market Investigation**

In January 2014, for the first time, the UK Competition Commission<sup>49</sup> found that a market was not functioning properly (without finding any specific breach of competition law that would incur a fine) and required remedies (including divestment) on the basis of coordinated effects. The nature of the apparent coordination in the market appears to be similar to the aspects of a customer allocation situation. The findings of this investigation are discussed as well as some other literature related to coordination.

The CC has recently determined that the market for cement in Great Britain is subject to potential coordination and has required the divestment of a cement plant and two measures to reduce industry transparency.<sup>50</sup> It is instructive to

---

<sup>47</sup> As above. Tarmac may have been a Maverick because it was a net buyer of cement (paragraph 344).

<sup>48</sup> As above. See paragraph 264.

<sup>49</sup> In April 2014 the functions of The Office of Fair Trading (OFT) and Competition Commission (CC) will be brought together under the new Competition and Markets Authority (CMA).

<sup>50</sup> Competition Commission Aggregates, Cement, and Concrete Market Investigation Final Report: <http://www.competition-commission.org.uk/assets/competitioncommission/docs/2012/aggregates->

examine the treatment of coordination in this report, the differences between the three markets considered (aggregates, cement, and ready-mix concrete (RMX)), and the reasoning for the remedies chosen.

Competition concerns were not considered a risk in the aggregates (or RMX) markets. Customers in the two aggregates case study areas (where the majors had high market shares) considered that independents were suitable alternatives. The internal documents suggested that firms were trying to grow share and encourage customers to switch.

However the aggregates market shared some aspects with the cement market because prices were potentially transparent from customers sharing competitor quotes with suppliers and cross sales between the majors. There were regional meetings of managers of the suppliers and shared sites. In the aggregates market (as in cement) firms regularly sent price announcement letters at similar times of the year, but it was not clear to what extent the announced prices resulted in actual price increases. 51

Coordination in aggregates was ruled out because despite the homogenous product there was significant geographic differentiation between the suppliers in each market and wide variation in competitive conditions in local markets, as well as the evidence on low profits and margins.<sup>52</sup> However the report did not appear to consider that varied local geographic markets with some firms not active in some local markets may allow coordination on a geographic basis and geographic differentiation between firms in those areas would not rule out coordination if these issues could be discussed at regional meetings. There may be simply too many local markets to detect any subset where local coordination could be feasible without documents to point in that direction.

---

cement-and-ready-mix-concrete/140114\_aggregates\_final\_report.pdf. Similar price letter and customer allocation concerns had been investigated in other cases in the sector including, OFT, Decision proposed joint venture between Anglo American plc and Lafarge S.A. (ME/5007/11) [http://www.of.gov.uk/shared\\_of/mergers\\_ea02/2011/anglo-american-lafarge.pdf](http://www.of.gov.uk/shared_of/mergers_ea02/2011/anglo-american-lafarge.pdf). Competition Commission Anglo American/Lafarge merger report (<http://www.competition-commission.org.uk/our-work/anglo-american-lafarge>, 2012).

51 Ibid paragraphs 26, 6.100, 6.108. There was considered to be no coordination in RMX because of low entry barriers, multiple different local markets, and low profits despite the majors having a 66% share nationally (9.71).

<sup>52</sup> Paragraph 6.132.

*Competition Commission findings in the Cement market:*

Market outcomes in cement appeared very different to those in aggregates with higher margins, and profits and relatively stable market shares despite significant excess capacity. Although some structural aspects of the GB cement market may be similar to the aggregates market, one difference was that in contrast to the regular bidding for individual tenders in the aggregates and RMX markets the cement market shows relative customer longevity and longer contracts. This allows customer allocations to be much more transparent. In a traditional model of price or market share based coordination there is a single market clearing price. In the cement market there was found to be no clear market price because of wide price discrimination (that did not appear to be explained by cost factors), in fact the report noted that the firms that switched supplier tended to secure lower prices, which suggests firms were implementing any agreement on a customer by customer basis and not market wide.<sup>53</sup> The analysis conducted by the CC found that there was limited difference between how firms treated the different customers in the market and in fact all customers could have been subject to any such agreement. The suppliers were considered to compete equally for large customers and small ones (the customer base was concentrated), although they did target the customers using imports.

In the cement market the CC found that firms monitored both the share of sales (including by using market data) and the customer switching. Although the CC concluded that the sales share was the focal point in fact the customer switching data gathered by the firms could lead to the share estimates. It was considered that the share data and the customer switching were both transparent which could give the relative shares of the 3 firms thought to be potentially colluding. There was also reference to firms targeting compensatory volume. The report acknowledged that in order to distinguish a deviation from collusion (a customer that was induced to start buying from

---

<sup>53</sup> 7.3, 7.181, 12.4. Thus they did not appear to sacrifice profits on existing customers when targeting other suppliers in a way that could be a punishment.

another colluding firm) to other market changes or exits then it was necessary to monitor win and loss data.<sup>54</sup>

The report found that when market share was below target firms would focus their offers at particular customers in tit for tat strategies. Tit for tat strategies were used for a short-term rebalancing of the market share and in targeting customers. Tit for tat could also be implemented by changing cross-sales (such as reducing purchases from a particular competitor) or targeting the customers of a specific competitor.<sup>55</sup> These tit for tat strategies could be used to punish in the short term alongside a wider price war that could be implemented for larger deviations.

There was some evidence of the parties share in industry data changing over the period and thus the firms often appeared to be trying to increase their market share to meet the target share. The parties suggested that constant tit for tat action was not consistent with periods of punishment, but instead represented competition. However, the CC argued that this was a regular rebalancing of share of sales and deterrence.<sup>56</sup>

Although the market wide share of the top 3 firms was changing this was not necessarily caused by any deviation from a coordinated understanding. The main reasons for share change over the period (2008-2012) was due to growing imports, and expansion by Tarmac, both of which were not subject to any arrangement. There was also a significant fall in market demand and Hanson switched significant purchases from external suppliers to internal supplies.<sup>57</sup> These changes may have caused the absolute shares of the three largest firms to fall and also (by potentially affecting the customers of

---

<sup>54</sup> 8.68, 8.215. Other changes including a customer buying from the fringe suppliers consisting of imports or Tarmac (that was not considered part of the collusion) or a customer stopping purchases merely due to a change in market or customer demand.

<sup>55</sup> 8.96, 8.152, 8.253

<sup>56</sup> 8.263.

<sup>57</sup> Hanson had merged RMX and cement production together in 2007 and had then internalised its purchases by reducing a lot of external purchases in 2009 (7.230). Lafarge being the largest firm in the potential agreement may have taken on more of the costs of accommodating expansion of the fringe. It was not necessary for coordination to be perfect for it to have harmed competition in the market.

one more than the others) could have caused their relative shares to change enough that redistribution of customers was required (in a reciprocal way) without this being caused by a deviation.

Some of the evidence of these events supports the view that customer switching was more relevant to the firms than sales volume. Lafarge appeared to have specifically targeted the customers of Hanson rather than the general market in order to regain its position after Hanson had reduced its purchases from Lafarge.<sup>58</sup> The report found that the pattern of interaction was not consistent with competition because the objective of gaining market share was dependent on market share having been lost, and the additional volume had been targeted to be won from a particular firm rather than the whole market.

In addition to these market changes, the fall in demand led to some GB cement plant closures. Some of the competition seen in the market may have been from firms targeting high quality or profitable customers within their share allowance, this resulted in what appeared to be imperfect coordination, but was partly due to rebalancing cost of delivering to customers to the new production locations after the plant closures. Thus some flux or long term changes in the market may have been adapted to via these targeting of particular customers, rather than this always acting as a punishment.<sup>59</sup>

Prices in the market were considered potentially observable because of customers quoting prices they have been offered and from cross sales with other suppliers. Neither of these routes is particularly reliable. The customers can exaggerate about what price it has been offered as a negotiation method. Awareness of this is demonstrated in internal documents.<sup>60</sup> The report also notes that the cross-sales made between the majors (suppliers) are made at higher prices than the sales to independents. Thus although these cross sales

---

<sup>58</sup> 7.235 f, 8.264. However, on an annualised basis the wins and losses between the top 3 firms did not match in an obvious pattern on the partial data analysed (7.179).

<sup>59</sup> 8.228

<sup>60</sup> 8.207, 8.188, 7.229.

quotes can be used for cheap talk or signalling desired prices they do not necessarily give information about actual prices.

The report found that there was high correlation in prices between the allegedly coordinating firms. However, there was also high correlation with the (non-coordinating) importers, and some of the higher correlation for the GB producers may be related to the timing of the price rises rather than the level because the contractual arrangements importers and producers have with their customers are different. Any pricing similarity between firms in the market may be due to the interaction of customers with the competitive fringe and not from any particular price monitoring by the allegedly colluding firms. This is supported by the fact that pricing was not found to be the focal point. However there was some evidence of potential price leadership discussions in the industry meetings.<sup>61</sup>

It was considered whether the asymmetry between firms meant that they would have lower incentives to coordinate. However, it was found that despite smaller firms having greater incentives to expand given their small share of the collusive profits, these firms also had lower capacity limits and so were less able to supply a large proportion of the market and would have less to gain from supplying at full capacity (deviating), so asymmetry did not prevent coordination.<sup>62</sup>

*Remedies required by the Competition Commission:*

The CC decided to implement three remedies in relation to the coordination on the market for cement. A divestiture of one of the plants of the largest firm (Lafarge) as well as two measures to reduce transparency in the market; stopping generic price increase letters and reducing the frequency and timeliness of industry data. The divestiture was considered to increase the external constraint on the merged firm more than it would affect the

---

<sup>61</sup> 7.218, 8.71.

<sup>62</sup> 8.314. This also applied to the asymmetry between the firms in the level of vertical integration, but significantly each of the main three firms was usually a net seller of cement and so was keen to expand cement profits.

monitoring or internal operation of any arrangement.<sup>63</sup> The sites to be divested were currently operating at full capacity, but an additional provider should still alter transparency and internal stability. Any reduction in concentration should reduce the risk from any form of coordination.

The pricing letters sent in the cement market involved Lafarge initiating the price rise on half the occasions. The actual price rise achieved after these letters were sent was often over 50% of the advertised price rise, but sometimes there was no increase after a letter. It is not clear from the report how different these results of achieved price rises are from the markets where such letters were not considered problematic such as in aggregates. The letters were considered important in this case because when more firms sent letters together the implementation of the price rise was more effective.<sup>64</sup> However, it may be the case that in periods when cost rises are more prevalent (there are stronger arguments for a price rise) letters are more likely to be sent together, there is not necessarily strong evidence that the mere presence of the letters led to the greater price rise.

The report concluded that targeting market share was consistent with coordination in market share rather than constant competition for share. The final description of the method of coordination stated that the focal point was the share of GB sales made by each of the GB producers (i.e. excluding any effects due to imports).<sup>65</sup> The government department (BIS) appears to publish cement production data but the trade association (MPA) does not. These data sources may not fully reveal the necessary data for this focal point. Given that the CC report seems to accept that Tarmac was not involved in the behaviour the most suitable measure of volume share for any

---

<sup>63</sup> 13.23. There was also a remedy to deal with a related market where Hanson had market power and may have increased prices to the maximum level at which it started to face increased competition (may have been a cellophane fallacy). The new operator of the Tarmac production facilities (HCM) was larger in terms of GB production than Tarmac had been, but was now long in cement (a net seller) so that it had less incentive to act as a maverick and force cement prices down for the benefit of its downstream business. The change in ownership of the Hope facility and other market changes were not considered enough to repudiate the conclusions of the investigation.

<sup>64</sup> 7.207

<sup>65</sup> 8.127, 8.208, 13.149. This means that the top 3 would target a proportion of the GB market for supplying GB produced cement.

agreement may be the share of each of the top 3 firms relative to each other (and maybe only for RMX customers). This specific data is not obviously available from the aggregated data in these sources.

*Comments on the Remedies:*

It is not clear whether the data that is being made more difficult to obtain via the information remedies was the key mechanism for monitoring or punishment in the market. Even with the ban on generic price letters to be implemented it will still be possible to quote the same percentage price rise to all customers and these can be shared (in redacted form) with others in the market. As long as the letters are suggested (not final) prices and can be negotiated over then they may still serve the same purpose as the current price letters by coordinating the timing of price rises and indicating to the market the degree of proposed increases to encourage industry acceptance of negotiated increases.

The report identified aspects of the market that led to transparency over any customer allocation or wins and losses (such as single sourcing at a particular job site). Most of the measures that could tackle these directly would be best taken by customers. Customers could stop providing clear information about their total (or site specific) demand and just require quotes for particular volumes. Purchases could move towards multi-sourcing or at least regularly changing arrangements leaving suppliers unsure whether a fall in orders was due to output or a switch to one or more current suppliers. Importantly, if any coordinating firms consider that a customer has switched (or may have switched) to an importer (rather than another member of the coordinating group) they are more likely to offer a competitive price and the customers who have switched in the past have benefited from this.

Looking at how the market explained in this investigation compared to the traditional model of a price (or market share) cartel it can be seen that in this market small firms have strong incentives to deviate. Just like a traditional model (unlike some customer or geographic allocation situations) there are few fixed costs to supplying new customers (at least until the point is reached at which their limited capacity is utilised, and subject to them finding sufficient potential customers that are not locked into contracts). However, unlike traditional models it is cheap to punish these firms because they (and their customers) can be specifically targeted without harming wider industry profits and so any deviation by them does not have to be accommodated. The

importance of symmetry in the market was rejected in this case, and it was unclear whether the ability to directly monitor price or market share was important for the functioning of any agreement.

### **Analysis of Coordinated effects in Merger analysis using Focal Points**

Having outlined some of the key differences between collusive strategies that use price, geographic, and customer focal points, a key question now is; how to apply this in practice. Whether looking at a merger analysis or a more general investigation of whether there are competition concerns in a market, a good first step will be to establish whether there are signs of existing tacit or explicit collusion in the market.

However, looking at a market to interpret the past behaviour of firms is not easy. In particular, how do you distinguish between a competitive interpretation of observed market behaviour or data and a tacitly coordinated interpretation? This uncertainty is perfectly reasonable considering that, if prices move in parallel this could reflect both effective competition, or tacit coordination. Similarly if there is low customer switching that can be equally uninformative. It may appear that there will almost always be a credible interpretation of observed market data that is consistent with effective competition. So how do competition authorities deal with this problem of identification?

The first step in understanding the past actions in a market is to determine which focal points could be used for a collusive outcome. In order to determine if the industry under consideration is vulnerable to coordination around one of these focal points, it will first be necessary to determine which potential focal points may be transparent to the firms and could be the basis of an agreement (either tacit or explicit). Once the relevant focal points have been established it is possible to examine market behaviour to test if it is consistent with coordination around these focal points.

**Price/output focal points:** Markets where firms or industry associations regularly publish individual or market wide transaction prices or output could be susceptible. Consider whether the winning prices or volumes of key contracts are announced, or whether firms have (advance or up-to-date) price comparison tools or detailed data on their competitors' offerings and production. Is the market fairly homogenous such that a single number for

price or output volume could give a good indication of a firm's competitive position.

**Geographic focal point:** Sectors, where local markets are served by a limited number of national/regional competitors who meet regularly, could be considered. It must be difficult to supply a local market or route without being present in a way that is transparent to competitors. Each of the firms that are potentially colluding must have some profitable areas where they are keen to discourage entry. Prices and terms in these areas should be set mainly in relation to current competition or consumer demand elasticity and not the threat of potential entry (which would mean that all areas were approximately equally profitable). Geographic focal points work better where there are reasonable but not large barriers to entry (or if there are many small local markets). If there are larger barriers to entry the threat of retaliation against other areas may become less credible and collusion could break down because once the large cost of entry has been incurred it is unlikely that collusion can be re-established by incentivising the firm to exit.

**Customer focal point:** Products are relatively homogenous or at least all firms can supply all large customers with little specialism or technical skill built up to supply individual requirements. If there are large customers who tend to keep the same supplier for long periods, markets are more likely to be vulnerable to a customer focal point. Homogenous product markets are more likely to have low switching costs and so firms in a competitive market could easily gain new customers and drive profits down in the absence of collusion. If firms differentiate themselves by meeting specific customer needs then even if that firm deviates from any agreement they may not be subject to strong retaliation because other firms cannot quickly replicate their offering to their customers. Where the product is more homogenous customers may be more willing to take the risk of using only one supplier (single sourcing) because other suppliers can be brought on quickly if there is any supply disruption. Single sourcing and long term relationships (even if contracts can be cancelled quickly if needed) increase transparency and lead to a greater chance that firms will be aware which competitor a lost customer has switched to and thus detect deviation.

All of these focal points are more likely to raise concern about coordinated effects in mergers that significantly increase concentration and general transparency. This will be particularly the case in a merger that only leaves

two significant firms. There is also greater risk in markets where there are few external constraints (potential entry, imports, buyer power, or substitutes).

*Identifying Potential Coordination:*

Once the potentially transparent focal point has been identified, examine how stable the market allocation has been based on this focal point, and whether the market appears to exhibit existing coordination around this focal point. Firms that use price focal points to coordinate will often increase prices only infrequently or at fixed periods (such as after meetings) and will all increase prices at the same time to the same extent. In output focal point markets the market shares, or ratio of sales made by the coordinating firms, may be very stable from year to year. There may be means of keeping to these relative sales levels such as arrangement to buy finished products from other members of the agreement to align sales with the agreed amount.

If firms are keeping to a geographic allocation there will be few examples of entry against other firms (and particularly other large firms that are part of the agreement). Entry against smaller firms or into new markets may be more likely than going into well developed markets despite entering against larger firms not necessarily having any lower risk of failure, for instance, from a lack of customer demand.

In customer allocation the market may see few examples of customers changing supplier. It could be more likely for smaller customers to change supplier than the larger customers, even if these customers have higher switching costs.

Any situations where the (potential) coordinated outcome appears to have been violated by the actions of the suspected firms could be examined. This would include past price wars or increases in competition such as during periods of geographic entry or customer switching.

It is important to check whether the target company in the merger was the initial deviator in past periods of competition (i.e. acted as a maverick at that time by cutting prices or winning customers first after a period of relative stability). This firm may have been playing a disruptive role in the market to the benefit of consumers. It may have been a leader for its price cutting policies or had a new technology, or it was not a member of a trade association where the geographic or customer allocations were agreed. Alternatively it may not face a threat of punishment because it did not have

geographic areas at risk of entry by the colluding firms or it had long term contracts with customers that prevented them reacting to improved offers by competitors.

Check whether there appears to have been some sort of punishment after the initial deviation. Punishment would include targeted entry or retaliation (e.g. targeting customers) by other firms that mostly harms the specific firm that started the deviation. This is different to a more pro-competitive reaction to a loss of sales (i.e. market share recovery to ensure the firm's internal targets are achieved). Competitive responses may be spread across many markets where the firm that lost sales believes it can expand profitably and do not target any particular competitor. Punishment can also be carried out by firms that did not face any initial loss of sales so may appear to have no incentive to change strategy in a competitive market but nonetheless target their response against the firm that deviated first.

Just the mere presence of price wars and sudden changes in competition or strategy may indicate firms are trying to influence the actions of their competitors rather than a competitive scenario that may have fewer reasons for temporary dramatic changes in margins. However, competitive firms will change prices to reflect cost changes and will react to new market opportunities and marketing or product innovation opportunities. They can sometimes trigger price wars or reduced margins by misinterpreting the cause of changes in the market.

As well as examining whether competitive reactions suitably explain any periods of instability based on a particular focal point, it may also be possible to consider how strong the competitive explanation is for periods of relative stability. Would you expect a competitive market with these features to be so stable? Thus when considering a customer allocation focal point there could be many reasons for lack of switching in competitive markets. The lack of switching may be due to the suppliers not bidding or attempting to enter new areas or could be merely the customers' lack of interest or search including high switching costs. If suppliers are failing to bid (or making uncompetitive bids) this does not necessarily imply collusion because there could be cost reasons that explain why few firms are able to compete such as transport costs or firms may have limited capacity and need to maintain the ability to supply sudden extra or unpredictable orders from existing customers. Thus it would be important to test out whether the firms that are not competitive in bidding should be expected to be that expensive in a competitive market.

Similarly if geographic entry is not occurring that could be because the market is fairly stable with limited growth in sales or area populations or the firms have limited access to capital for new growth. Existing profits may be low leading to limited incentive to expand. If there are no competitive reasons for a lack of new entry then a collusive explanation appears more likely.

As well as considering how consistent the market outcomes are with either a competitive or a collusive reasoning, it is possible to consider how any agreement may be coming about. If there is no opportunity for firms to reach an understanding then concern should be lower. Any public messages by firms that suggest they will react in a particular way to their competitors or to a loss of business should be examined for whether this response would act as a punishment and how effective it would be at deterring competition.

This may include price matching guarantees. For instance, if a firm threatens to respond to a price cut of a particular product at a rival store by taking out adverts outside the store telling potential customers of that store that they can obtain lower prices on that product at its stores, then this would be likely to deter the firm from cutting this price. The customers that would use its stores may be more likely to stop if additional marketing suggesting it was expensive appeared outside its stores.

It is also useful to test whether there are systems or forums where a potential agreement can be communicated privately. This could be quite a broad range of possibilities including if the main firms are members of trade associations and meet regularly. It could be relevant whether the firms tend to recruit staff from competitors frequently or socialise with employees from competing firms. These types of behaviour may be more likely where there are few employers in a local area that is specialised in an industry or where the industry is particularly specialised and requires skills that do not easily translate to other markets.

#### *An Updated Checklist:*

Having considered existing indicators for how coordination may be initiated and how it may be possible to detect existing collusion in markets which are using geographic or customer allocations, it is now possible to review the original list of factors that may be conducive to (price or output) coordination to see if they still apply to coordination using geographic or customer focal points:

### Structural factors:

- Homogeneous products, lack of innovation. This can be useful, but unlike in price focal points where the key is ensuring there are no non-price aspects of competition that can be used to undermine a price agreement in the eyes of customers (i.e. customers view them as similar), the key in geographic or customer allocation is that products are similar as far as the suppliers are concerned and that all firms in the market are equally able to supply all the products (regardless of the cost to the suppliers of this) with limited specialised know-how.
- Transparency of price or other terms of sale. Timely disaggregated data, industry communication, market reports, associations, and government regulation. If using geographic or customer allocation it is not necessary to have transparent information on price or output. It may still be necessary to have communication of a general sort (i.e. about industry developments or customer or geographic strategies) and this communication may need to be more frequent if the messages are not explicit in order to build up sufficient understanding and agreement tacitly.
- High entry barriers (history of entry, minimum efficient scale). For all collusion it must be difficult for other firms to replicate the skills and position of the colluding group. However, for members of this group it must be relatively easy to enter different areas or supply new customers if they want to retaliate and enforce a collusive allocation. This may mean that entrants can also supply at the local level. However, as long as it takes sufficient time to enter enough areas and customers then the incumbents can respond before an entrant gains the resources to defend its markets and before its cost base is efficient enough to enter and expand rapidly. If each new local entry or expansion has some sunk cost (which is larger for entrants than incumbents) and incumbent firms can respond to this rapidly then incumbents will be able to cause entrants to exit before they have recouped these fixed costs so entry is unprofitable. Other entrants are discouraged.

### Supply factors:

- Past cartels or a history of collusion. This one is still relevant. Particular attention should be paid to which focal points were used.

- Market concentration, oligopolistic market. Collusion is still easier with a smaller group of firms that have to learn the agreement in the industry. However, it is not necessary for the agreement to cover all operations and so it is possible that only certain identifiable segments of the market (such as those with higher quality standards) are oligopolistic.
- Homogenous firms (market shares, capacity, and cost structure). If a firm has a much lower cost than its rivals then it may act as a maverick so some cost symmetry may be necessary for collusion. It may not be necessary for incumbent firms to have much spare capacity, because punishment can be targeted. It may not be necessary for firms to be equal size because a small firm that is not able to pay for all the sunk costs necessary to expand dramatically may realise that even in an competitive market it could not gain a large share. Thus it may be willing to settle for its low market share with high profits (due to collusion) rather than try to expand. The small firm may have only a small capacity and so be unable to supply much of the market. This is in contrast to some theories of coordination that assume all firms can supply a large part of the market or have no cost of expanding.
- Stability of market shares. If market shares are based on sales volumes or values then these may not be stable. Firms that are used to maintaining coordination based on long term areas or customers may allow members of the agreement to keep short term windfalls that occur when some of their customers or markets expand. Competitors in the industry may not even be aware of all the sales a rival firm is making in its allotted markets as long as it is not trespassing on their areas. Collusion could also be limited to certain profitable markets or certain large customers and so looking at volume or value in the whole market may hide collusion in a part of it.
- Elimination of maverick. This is still relevant but the definition of a maverick may change. It is not only a firm that has a low marginal cost and is keen to expand and supply the whole market. A firm with low sunk costs of entry or expansion or who is difficult to punish because it does not have areas at risk of retaliation or has long term contracts with its customers could be seen as a maverick. A firm that does not realise there is an agreement and may enter reducing the profits of industry firms could also be a maverick.
- Bid rotation and patterns in auction markets. Geographic and customer allocations are not relevant to auction markets. The auction could be to

win a customer or an area but the process of coordination would always be the same as under the existing models.

- Available excess capacity. At least some firms require the ability to expand into supplying new customers or areas in order for coordination to be necessary to prevent this entry (although they do not need to keep this capacity ready to use immediately). However, some firms can retaliate against entry with very little excess capacity. Punishment could occur after a slight delay especially if entrants have sufficient sunk cost of entry that they will not have recovered this by the time the punishment occurs and will still suffer a loss from the entry attempt.
- Vertical integration. This may not be relevant because it may not increase any transparency over geographic or customer allocations, but it may give more scope for communication and reaching agreement.
- Multi market contact. This can increase coordination, but if the market consists of lots of customers (that are being competed for or allocated) or lots of local markets then these can turn into the multiple markets. Firms in these industries could be unable to gain a large part of the entire industry sales in a short period and there may be greater opportunity to retaliate.
- Structural links (minority stakes, joint venture). This can still be useful for coordination in terms of aligning incentives and increasing communication.
- Most Favoured Nation Clause (MFNC). Price transparency is not necessary so this is not needed. A clause like this may make it harder to exploit market power in particular areas or with particular customers because it would not be possible to give these firms a guarantee that they were getting the best prices.
- Price matching guarantees. Again price transparency and threats or punishment related to that focal point are not required. If prices charged to different customers or areas are required to be the same it may actually undermine collusion based on customer or geographic allocation because it is harder to exploit market power for some customers or areas.

Demand factors:

- Stability of demand (unpredictable fluctuations or growth). Coordination may still be possible with some demand instability. If all areas or customers are growing or changing at the same (unpredictable) rate

then coordination is still possible because this does not affect the allocation. It is still difficult for firms to incur sunk costs and expand to new areas or customers in a falling market so expansion and deviation may be discouraged. Even if some parts of the market were benefiting more from demand changes than others the extent of these differences in the allocation may not be that great if most firms have both growth and decline areas in different parts of the country. If firms are benefiting differently from the growth of certain areas the extent of this difference may not be clear or transparent to competitors (or only with a lag by which time it is too late to take advantage of this). Even if firms realise they are losing out due to demand growth they may delay responding if they have limited ability to expand rapidly and the profits they are gaining on their existing reserved areas or customers are large enough to discourage them from causing increased competition and low profits for everyone. Firms are more likely to compete in when the fortunes of firms are altered by market growth if managers are rewarded based on their relative performance compared to their competitors rather than on absolute profits.

- Frequency of interaction (sales patterns and pricing patterns). This can be interpreted as the number of local markets that can be allocated or how many concentrated high profit local markets or important customers there are. The market is more likely to be coordinated if entering supply of each of these will have a new sunk cost (e.g. if large customers require marketing material or a change of packaging that is specific to them). It is particularly important that any entrants should have a significant sunk cost to supplying the key customers or markets.
- Inelastic demand and import restrictions. This is still important.
- Buyer power (sponsoring entry, re-designing product or process, or relations in other markets). Still important.

As well as these previous factors, it is possible to suggest some new additional or alternative indicators to be considered when geographic or customer allocation could be possible:

Customer churn: Whether the market appears to be stable in relation to the customers allocated to each supplier. Larger customers will normally be more attractive to competitors than smaller ones (who may have higher switching costs or search costs) so if the larger customers change supplier less often this may indicate competition is lower in this segment. This is especially true if the lack of switching by larger customers is due to a lack of attempts by

competitors to win these customers despite their accounts being more valuable and if the suppliers have lower customer acquisition costs than the customers' switching costs.

Geographic churn: Whether entry is more likely into markets where there is no incumbent or where small firms that are not part of the agreement are present than into markets where other large firms are operating. Is this the case even if the routes or areas that are not entered are dominated by a few incumbents and appear to be the most profitable ones.

Sudden changes in market conditions (such as the amount of entry and customer switching) that do not appear to be caused by external events such as new products or marketing opportunities. These increases in competition may end as quickly as they begin.

A market that is conducive to geographic allocation with firms repeatedly interacting in many separate markets and making high profits in areas with few of the large national firms present.

A market that is conducive to customer allocation with firms repeatedly interacting with many separate (large and valuable) customers that have long term relationships. Each customer is large enough for an understanding to be built up about that customer (maybe at a local or production site level) but is not large enough to be a significant part of the entire industry demand. This means that it is not worth sacrificing the agreement in order to win that one customer.

The above elements are helpful in informing the theory of harm under investigation and should fit in a coherent way with the particular facts of the investigation.

## **Conclusion**

Firms engage in coordination in order to raise profits at the expense of customers. This usually means that whether the agreement they reach is tacit or explicit it is usually designed to increase the prices they can charge their customers. However, even if raising prices is the objective of the agreement it does not mean that the new price level needs to be stated in the agreement. Each part of the market or each firm could have a different view of what price can be charged to customers and these prices do not need to have been discussed for the agreement to have reduced competition.

The agreement that firms enter into could merely outline how rivalry will be controlled or eliminated and leave it up to the firms how they exploit the greater market power this gives them.

Focal points that are based on how firms interact including which areas or customers they compete for may be more transparent and easier to establish tacitly. More explicit agreement between firms may be needed if the agreement requires lots of specific actions to support it, such as exchanging information with competitors which may have no purpose other than to enable agreement.

How targeted or effective punishment for any deviation can be depends on the focal point used in the agreement. Internal stability can be increased if the punishment can be made more severe by targeting the firm that deviated. If the identity of the firm that deviated as well as the fact that there has been deviation is transparent, then this firm can be targeted. If the market can be separated out so that different prices or offers are made to areas or customers that use that particular supplier then this firm will suffer more from the punishment than others in the market. Coordination elsewhere in the market can continue even during the punishment phase.

Some markets where tacit coordination is thought to have led to higher prices appear to have used frequent communication to establish geographic or customer based focal points. In this summary the cement market was discussed for customer allocation and the bus market for geographic allocation.

Several indicators have been developed for when a market may be at risk or suffering from coordination, particularly when this is based on price or output transparency. Some of these indicators will still be relevant when tacit coordination using customer or geographic focal points is occurring. There are also other means of identifying when a market could be vulnerable to these focal points including whether firms appear to have targeted punishment at those firms that initiated increases in competition.

Regulators should also consider the extent to which firms have attempted to communicate to influence the expectations of competitors in order to reduce competition. Having a view about how a competitor would react to a change in competition is reasonable, but trying to make competitors more wary of your response to their actions, or trying to agree or discover from competitors when

they will respond to your actions, may indicate the start of a collusive agreement.

## References

*Aubert, Rey Kovacic. (2006). "The Impact of Leniency and Whistleblowing Program on Cartels.," International Journal of Industrial Organization.*

*Bon, Crocioni, Sala. (Dec 2013), "There is always a first time: Coordinated effects via Vertical Structural changes in Anglo/Lafarge", Competition Policy International.*

*Judgment of the Court of First Instance (Fifth Chamber, extended composition) of 6 June 2002. Airtours plc v Commission of the European Communities.*

*Sony Corporation of America and Bertelsmann AG Joint venture decision 2004 and Judgment of the Court of First Instance (Third Chamber) of 13 July 2006.*

*Competition Commission Local Bus Services, Addendum to provisional findings on geographic market segregation and operator conduct. [http://www.competition-commission.org.uk/inquiries/ref2010/localbus/addendum\\_to\\_provisional\\_findings.htm](http://www.competition-commission.org.uk/inquiries/ref2010/localbus/addendum_to_provisional_findings.htm)*

*Competition Commission Anglo American/Lafarge merger report (<http://www.competition-commission.org.uk/our-work/anglo-american-lafarge>, 2012).*

*Competition Commission /OFT, Merger Assessment Guidelines, September 2010 [http://www.oft.gov.uk/shared\\_of/mergers/642749/OFT1254.pdf](http://www.oft.gov.uk/shared_of/mergers/642749/OFT1254.pdf)*

*Compte, O., F. Jenny, and P. Rey (2002), "Capacity Constraints, Mergers, and Collusion", European Economic Review, Vol. 46, 1-29*

*EC: Guidelines on the assessment of horizontal mergers 2004, [http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52004XC0205\(02\):EN:NOT](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52004XC0205(02):EN:NOT)*

*EC: Council Regulation (EC) No 139/2004 of January 20, 2004 on the control of concentrations between undertakings.*

*EC: Commission Decision of 23 September 2008, case M.4980 — ABF/GBI Business*

*EC: July 2009 cartel decision on GdF Suez and Eon: Article 81 decision:<http://europa.eu/rapid/pressReleasesAction.do?reference=IP/09/1099>.  
ECJ Impala judgement (Judgment of the Court (Grand Chamber), July 2008)*

*EC: T-342/99 - Airtours v Commission, 1999.*

Miguel A. Fonseca and Hans-Theo Normann, (August 2012), "Explicit vs. Tacit Collusion: The Impact of Communication in Oligopoly Experiments", DICE Discussion Paper, No.65, ISBN 978-3-86304-064-2.

Joseph E. Harrington, Jr. (January 2012), "A Theory of Tacit Collusion",  
[www.econ.jhu.edu/People/Harrington](http://www.econ.jhu.edu/People/Harrington).

*Impala CFI decision was overturned by the European Court of Justice (ECJ) Judgment of the Court (Grand Chamber) of 10 July 2008.*

Updated Chapter 4 of the ICN Investigative Techniques Handbook for Merger Review "The Role of Economists and Economic Evidence in Merger Analysis" Prepared by The Merger Working Group April 2013: [http://icnwarsaw2013.org/docs/icn\\_mwg\\_updated\\_chapter\\_4\\_of\\_the\\_handbook.pdf](http://icnwarsaw2013.org/docs/icn_mwg_updated_chapter_4_of_the_handbook.pdf).

Ivaldi, Rey, Jullien, Seabright, Tirole, (March 2003), "The Economics of Tacit Collusion", Report for the DG Competition.

KAI-UWE KÜHN (2004), "THE COORDINATED EFFECTS OF MERGERS IN DIFFERENTIATED PRODUCTS MARKET".

[HTTP://WWW.LAW.UMICH.EDU/CENTERSANDPROGRAMS/OLIN/PAPERS.HTM](http://WWW.LAW.UMICH.EDU/CENTERSANDPROGRAMS/OLIN/PAPERS.HTM)

Kuhn (2008) in *Handbook of Antitrust Economics*, Edited by Paolo Buccirossi, MIT Press.

*The Economics of Collusion, Cartels and Bidding Rings*, By Robert C. Marshall and Leslie M. Marx, MIT press.

Moresi, Reitman, Salop, and Sarafidis, (2011) "Gauging Parallel Accommodating Conduct Concerns with the CPPI",

SSRN: <http://ssrn.com/abstract=1924516> or <http://dx.doi.org/10.2139/ssrn.1924516> The coordinated PPI requires data on discount rates, margins, diversion ratios, demand elasticity's and sales.

Motta and Fabra, (2013), "Coordinated effects in Merger cases"- Report commissioned by the World Bank.

OFT: Anticipated acquisition by Wienerberger Finance BV of Baggeridge Brick plc, ME/2603/06 2006).

OFT: Completed acquisition by DS Smith plc of LINPAC Containers Limited, ME/1647/04, 2004).

OFT: Completed acquisition by Aggregate Industries Limited of Foster Yeoman Limited, COMP-M/4298, 2007).

*OFT, Decision proposed joint venture between Anglo American plc and Lafarge S.A. (ME/5007/11)*

*[http://www.ofc.gov.uk/shared\\_ofc/mergers\\_ea02/2011/anglo-american-lafarge.pdf](http://www.ofc.gov.uk/shared_ofc/mergers_ea02/2011/anglo-american-lafarge.pdf).*

*OFT: Anticipated acquisition by BATS Trading Limited of Chi-X Europe Limited, ME/4904/11, 2011).*

*OFT: Completed acquisition by C&C Group plc of the Tennent's business from Anheuser-Bush InBev NV/SA Group, ME/4256/09, 2009).*

*OFT, Conjectural Variations and Competition Policy: Theory and Empirical Techniques 2011. (prepared by RBB Economics).*

*<http://www.ofc.gov.uk/OFTwork/research/;jsessionid=B109EC3F033E31CE65310360213712AB>*

*Adrian Proctor, Tacit Collusion Indicators in Merger Control under Varied Focal Points, 10 J. Competition L. & Econ. 10.1093/joclec/nhu019 (2014)*

*Proctor, Adrian J. 'Identifying Geographic or Customer-Based Collusion'. World Competition 38, no. 2 (2015): 253–280. 2015 Kluwer Law International BV, The Netherlands) with the permission of Kluwer Law international.*

*The US merger guidelines: Horizontal Merger Guidelines, U.S. Department of Justice and the Federal Trade Commission, Issued: August 19, 2010. [ftc.gov/os/2010/08/100819hmg.pdf](http://ftc.gov/os/2010/08/100819hmg.pdf)*