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**PARTICIPATION IN MULTIPLE CARTELS THROUGH TIME**

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-- Session IV --

*This paper by Robert. C. Marshall, Penn University and Leslie M. Marx, Duke University, was submitted as background material for Session IV of the Global Forum on Competition to be held on 29-30 October 2015.*

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## PARTICIPATION IN MULTIPLE CARTELS THROUGH TIME<sup>1</sup>

-- Robert C. Marshall<sup>2</sup> and Leslie M. Marx<sup>3</sup> --

### I. Introduction

1. We begin by considering a hypothetical conversation between two division managers from different firms that make substitute products. We label these division managers DM1 and DM2. We offer different versions of the conversation in order to contrast different approaches that division managers might take regarding the possibility of the collusive suppression of rivalry.

#### The conversation begins:

DM1: "If we both raise our prices by 10% and the other producers do the same we will all increase our profits."

DM2: "Of course."

DM1: "If you agree to raise your prices 10% then I will do so as well, conditional on us being able to get the others to do the same."

DM2: "If the others agree then I will raise my prices 10%."

#### The conversation continues, with three possible scenarios:

##### Scenario 1

DM1: "We will want to implement a way to monitor compliance with the agreement to raise prices and, in addition, agree on a way to divide the gains among us from the price increase – without those things there will likely be excessive cheating on the agreement. Because we have not had such an agreement in the past, allow me to suggest a global market share allocation based on our production from last year. With regard to monitoring, I propose that my firm get reports from all others and then corroborate those reports with market intelligence. Your firm can check on my production, sales, and pricing to insure that we are in compliance."

DM2: "Sounds good."

##### Scenario 2

DM1: "We will want to implement a way to monitor compliance with the agreement to raise prices and, in addition, agree on a way to divide the gains among us from the price increase – without those things there will likely be excessive cheating on the agreement. Because we have successfully colluded in Products X, Y, and Z in the past, and the products we are now proposing to collude in share many similar

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characteristics, I propose that we use the allocation and enforcement structures we used in them for this agreement.<sup>4</sup>

DM2: "That should work. Agreed."

### Scenario 3

DM1: "We will want to implement a way to monitor compliance with the agreement to raise prices and, in addition, agree on a way to divide the gains among us from the price increase – without those things there will likely be excessive cheating on the agreement. Because we have successfully colluded in Products X, Y, and Z in the past, and the products we are now proposing to collude in share many similar characteristics, I propose that we use the allocation structures we used in them for this agreement. With regard to enforcement structures, specifically monitoring, I propose we use the Association Management Company we have used in the past to monitor what all of us are doing."

DM2: "That should work. Agreed."

2. In Scenario 1, the division managers are first-time colluders and make a reasoned guess as to what might work for them, but without any experience in implementing cartel structures the colluding firms may have some struggles, at least initially, with their agreement. Scenarios 2 and 3 are the reflections of seasoned cartel members. They understand the structures for their new cartel based upon their experience with previous cartels in similar products.<sup>5</sup> As an example, seemingly independent price increase announcements, feigned competitive bidding with buyers, and the resolution of intra-cartel issues are all well understood by the two firms, and they understand how to tailor these solutions to the characteristics of a new cartel.<sup>6</sup> They also understand whether or not an outside consulting/auditing firm will be beneficial in helping to run the cartel based upon their previous experiences.

3. As we show in this paper, there is evidence that firms participate in multiple cartels though time, implying that scenarios 2 and 3 have practical relevance.<sup>7</sup> Furthermore, there is evidence of the repeated involvement of outside consulting/auditing firms to help run cartels, implying that scenario 3 has incremental relevance.

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<sup>4</sup> In practice, corporate managers are unlikely to use these words -- "allocation and enforcement structures", as well as pricing structure. Instead they will just say things that imply these structures. The structures do not need to be formally specified as such to still be effective.

<sup>5</sup> See Marshall and Marx (2012) Ch 6 and Ch 9 for a discussion of structures to support the collusive agreement as self-enforcing.

<sup>6</sup> For a given cartel, the nature of the product/industry/market may imply no need for an explicit agreement regarding a particular cartel structure while for a cartel in a different product/industry/market an explicit agreement about the nature and implementation of that cartel structure will greatly enhance the effectiveness of the cartel.

<sup>7</sup> Papers such as Veljanovski (2011), Werden, Hammond, and Barnett (2011), and Wils (2012) address the issue of "recidivism," focusing on whether the DoJ and EC penalties deter collusion in the future by those firms having been found guilty.

## II. Data on participation in multiple cartels through time

4. To consider the issue of firms participating in multiple cartels through time, we examine European Commission (EC) Decisions in cartel cases and note the identities of the cartel participants. We focus on firms that have been identified as participating in cartels in four or more EC Decisions.

5. Because we focus on detected cartels for which there is a published decision by the EC, we are obviously only examining a subset of actual cartels. There may be a large number of other cartels that were not detected by the EC. As with any truncated data, the possible reasons for the truncation are noteworthy. Perhaps the identified cartel participants are participating in a vast number of cartels relative to other firms, and these are the few that were detected by the EC. Perhaps these firms are inept/incompetent at running cartels and thus they get caught frequently. Perhaps the EC scrutinizes firms within the industries of these firms, or the firms themselves, and thus the participation in cartels appears to be more frequent than other firms, or firms in other industries. Finally, perhaps these firms are choosing to have their collusive conduct detected for strategic reasons.<sup>8</sup>

6. We summarize our results for firms participating in four or more cartels in Table 1.

**Table 1: Firms that have been named in 4 or more EC cartel decisions since 1966<sup>9</sup>**

Firm	Number of cartels
Akzo Nobel	9
Fides/AC Treuhand	8
BASF	7
Solvay	7
Shell	6
Degussa	6
Hoechst	6
Arkema/ Atofina	6
Bayer	5
Rhone Poulenc/Aventis	5
ICI	5
Elf Aquitaine	5
Atochem	4

7. With the exception of Fides/AC Treuhand, the firms listed in Table 1 are all chemical (or petrochemical) firms. Some of these firms have been found to have participated in cartels for over 30 years. There are reasonable conjectures regarding the propensity for the firms of the chemical industries to be involved in collusion. One is that collusion is a historical artifact. Another is that rivalry suppression is a particularly significant source of profits for chemical firms. We consider each in turn.

<sup>8</sup> See Marx, Mezzetti, and Marshall (2015) for a discussion of the strategic manipulation of leniency when multiproduct firms are colluding in more than one product.

<sup>9</sup> See Appendix for a list of the EC decisions associated with each firm. This list is not necessarily exhaustive, but is based on our current review of EC decisions.

8. *History.* Cartels in the chemical industry prior to World War II are well documented in Stocking and Watkins (1946). Some of the firms in Table 1 merged before the war to form I.G. Farben, and then after the war the firms spun-off again.<sup>10</sup> The history of collusion implies that the firms in Table 1 know how to initiate and implement collusion and can appropriately tailor the collusive structures to a given product/industry/market.

9. *Rivalry suppression as a source of profits.* For some product/industry/markets the major encumbrance to incremental profits is not interfirm rivalry. However, in the chemical industry, for some product/markets where a few firms are making a product that is chemically identical to what their rivals make, interfirm rivalry can be the major encumbrance. There is often learning by doing in the manufacturer of a chemical product which can create a substantial entry barrier. There are often few good substitute products for a given chemical with regard to many applications. The factor inputs used to make the chemical are often commodities, or, the manufacturer is vertically integrated into the production of the input. In other words, the mitigation of interfirm rivalry from collusion translates into a substantial increase of profits because for some chemical products there is essentially no threat of entry and, in addition, there is little possibility of substitution to other products by buyers. In addition, the collusion provides a way to mitigate resistance by buyers to the price increases.

### III. Association management companies

10. Fides/AC Treuhand, which appears in Table 1, is not a chemical producer. It is an association management company (AMC).<sup>11</sup> Product/industries and professions often have an association – for economists the primary one is the American Economic Association. Associations will often arrange regular meetings of members. One role of an AMC is to provide association management *services* such as hotel bookings and logistical arrangements for conferences and meetings. But AMCs often provide benchmarking and other information services for members. For example, each member of a product/industry may provide monthly reports of production, sales, and pricing to an AMC. The AMC may audit/verify this information and then issue reports that aggregate this data to the product/industry members. There is a fine line between using individual firm data to help members resolve product/industry-wide coordination issues through the provision of reports based on aggregated data versus supplying disaggregated data back to each member so that each member can monitor that others are complying with an agreement to suppress interfirm rivalry.

11. There are eight European Commission cartel decisions where Fides/AC Treuhand has been called out.<sup>12</sup> One purpose of AMCs is to facilitate the creation and running of industry associations. The repeated involvement of Fides/AC Treuhand in cartels leads to several points.<sup>13</sup>

<sup>10</sup> See <https://en.wikipedia.org/wiki/BASF> for a basic history of the firms BASF, Bayer, and Hoechst.

<sup>11</sup> Fides/AC Treuhand is described in paragraph 20 of the EC decision on Organic Peroxides: “AC Treuhand AG10 (hereinafter ‘AC Treuhand’) is a Zurich based entity offering services to companies, associations and interest groups. It performs functions such as managing and administering professional organisations, the collection, processing and analysis of market data and the presentation and dissemination of market statistics. AC Treuhand is the result of a 1993 management-buyout of the division offering association-management within a company called Fides Trust AG. For consistency, this Decision refers to AC Treuhand, even though for most of the time in question, the business was run under the name of Fides and most documents refer to Fides and not to AC Treuhand.”

<sup>12</sup> In early cases, the EC reported Fides/AC Treuhand’s involvement as one of collecting firm specific information and issuing reports back to members that were based on aggregated data. In latter cases the descriptions of Fides/AC Treuhand indicated a deeper involvement in the operation of cartels. For example, paragraph 92 of the EC Organic Peroxide Decision describes Fides/AC Treuhand's role in that conspiracy.

12. There are many AMC firms around the world and there is an association for AMCs.<sup>14</sup> There appear to be no other AMC firms called out in the EC decisions other than Fides/AC Treuhand. Fides/AC Treuhand could be the only AMC engaged in such conduct, or, the EC decisions may not capture the involvement of other AMCs in assisting cartels, or, there may be some strategic benefit to the cartels in question from being detected and being linked to Fides/AC Treuhand.

13. It is reasonable to inquire as to whether competition between AMCs for the business of a given product/industry results in some AMCs stepping over the antitrust line by providing disaggregated firm-specific data to each member to help them monitor members of their cartel. Questions remain whether a subset of AMC firms compete with one another by offering the service of initiating and/or running a cartel for firms in an industry and whether AMC firms “pitch” such opportunities or if they wait to be approached by firms in the industry.

14. The EC found Fides/AC Treuhand to be involved with six chemical cartels. Every chemical firm listed in Table 1 has been a member of a cartel in which Fides/AC Treuhand has been involved. For three cartels, BASF was a member of the cartel. But BASF participated in four other cartels where the EC does not note any involvement of Fides/AC Treuhand. It would be interesting to understand why a major chemical producer like BASF chooses to involve Fides/AC Treuhand in helping to run some cartels but not others. A conjecture in this regard is that if a firm is involved in multiple cartels where the products of each are somehow interconnected, either vertically or horizontally, and the cartels do not have identical

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AC Treuhand :

- (a) organised meetings of the members of the agreement, often in Zurich;
- (b) produced, distributed and recollected the so called ‘pink’ and ‘red’ papers with the agreed market shares which were, because of their colour, easily distinguishable from other meeting documents and were not allowed to be taken outside the AC Treuhand premises ...;
- (c) calculated the ‘pluses and minuses’, i.e. the deviations from the agreed market shares, which were used for compensations;
- (d) reimbursed the travel expenses of the participants, in order to avoid traces of these meetings in the companies’ accounts;
- (e) collected data on OP sales and provided the participants with the relevant statistics;
- (f) stored the original agreement from 1971 and other relevant documents concerning the agreement in its safe and handed them over to PC;
- (g) acted as a moderator in case of tensions between the members of the agreement and encouraged the parties to find compromises. AC Treuhand would try to stimulate the parties to work together and reach an agreement. *‘The message from AC Treuhand was that it would get worse for the participants if they discontinued the discussions.’;*
- (h) was actively involved in reshaping the arrangement among producers in 1998 during a bilateral meeting in Amersfoort between Akzo representatives and [...] of AC Treuhand. During this bilateral meeting a solution aimed at meeting Atochem’s demand was developed. The solution consisted of a proposal of AC Treuhand for the new quotas;
- (i) AC Treuhand advised the parties whether or not to allow other participants into the agreement;
- (j) instructed all participants on the legal dangers of parts of these meetings and on what measures to take to avoid detection of these arrangements’ bearing on Europe;
- (k) participated mainly the ‘summit’ meetings but at least at once instance in the nineties attended also a working group meeting;
- (l) according to Akzo chaired at least some of the meetings, (AC Treuhand sees itself his in its reply to the SO not as chairman but as moderator);
- (m) was aware of the Spanish sub arrangement<sup>58</sup> and was asked to calculate the deviation between agreed quotas and effective sales in Spain
- (n) organised the auditing of the data submitted by the parties
- (o) calculated the new quotas after the acquisition and integration of competitors in the agreement.

<sup>13</sup> Fides/AC Treuhand has been fined by the EC, in aggregate over the eight cartels, 175,000 euros.

<sup>14</sup> See [http://www.2mpact.be/sites/default/files/AMSE\\_whitepaper2013\\_v2\\_0.pdf](http://www.2mpact.be/sites/default/files/AMSE_whitepaper2013_v2_0.pdf) for a description of AMCs as well as a list of AMCs throughout Europe.

membership, then it may be the case that the involvement of Fides/AC Treuhand resolves coordination issues. Some examples may be the avoidance of double marginalization as well as the coordination of price increases between substitute products, each of which is cartelized.

15. Apparently, the Vitamins cartel did not use the services of Fides/AC Treuhand or some other AMC. Instead, Roche played the role of cartel leader, taking on all monitoring responsibilities. BASF was a key member of the Vitamins cartel and had experience with Fides/AC Treuhand by the time of the initiation of the Vitamins cartel, yet apparently did not seek their direct active involvement.

#### **IV. Conclusion**

16. It would be valuable to understand the role of AMCs with regard to antitrust policy. If a subset of AMCs has a long history of initiating and running cartels, then a major hurdle to being successful with collusion can be easily overcome by seeking the advice and counsel of such an AMC. In addition, if Fides/AC Treuhand is not a monopoly provider of cartel services among AMCs, but rather a subset of AMCs are competing with one another to provide this service to firms in a product/industry/market, then antitrust policy should be directed toward deterring the role of AMCs with regard to such anticompetitive activities.

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- Veljanovski, Cento, 2011, "Deterrence, Recidivism and European Cartel Fines," *Journal of Competition Law & Economics*, 7(4): 871-915.
- Werden, Gregory J. , Scott D. Hammond , and Belinda A. Barnett, 2011, "Recidivism Eliminated: Cartel Enforcement in the United States since 1999," Presented at the Georgetown Global Antitrust Enforcement Symposium Washington, D.C. September 22,  
<http://www.justice.gov/atr/file/518331/download>
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## APPENDIX

## EC Decisions and Cartel Firms listed in Table 1

1. Bitumen: Case COMP / 38.456 – Bitumen - NL, September 13, 2006
  - a. Shell,
2. Butadiene Rubber, Case COMP/F/38.638 – Butadiene Rubber and Emulsion Styrene Butadiene Rubber, November 26, 2006
  - a. Shell, Bayer
3. Calcium Carbide, COMP/39.396 – Calcium carbide and magnesium based reagents for the steel and gas industries, July 22, 2009
  - a. Akzo Nobel, Degussa
4. Candle Waxes, Case COMP/39181 – Candle Waxes, October 1, 2008
  - a. Shell, Solvay
5. Cartonboard, IV/C/33.833 - Cartonboard, October 1, 1994
  - a. Fides/AC Treuhand
6. Chloroprene Rubber, COMP/38629 - Chloroprene Rubber, December 5, 2007
  - a. Bayer
7. Choline Chloride: Case COMP/E-2/37.533 – Choline Chloride, Comm'n Decision (Sept. 12, 2004).
  - a. BASF, Akzo Nobel
8. Citric Acid: Case COMP/E-1/36.604 – Citric Acid, Comm'n Decision, 2002 O.J.(L239) 18.
  - a. Bayer
9. Fatty Acids: IV/31.128 — Fatty Acids , Comm'n Decision (December 2, 1986)
  - a. Fides/AC Treuhand
10. Food Flavor Enhancers: Case COMP/C.37.671 – Food Flavour Enhancers, Comm'n Decision 2004 (L 75)
  - a. <None from those listed in Table 1>
11. Heat Stabilizers, COMP/38589 – HEAT STABILISERS (November 11, 2009)
  - a. Fides/AC Treuhand, Akzo Nobel, Arkema/ Atofina
12. Hydrogen Peroxide, IV/30.907 — Peroxygen products, November 23, 1984
  - a. Solvay, Degussa, Atochem
13. Hydrogen Peroxide, Case COMP/F/38.620 – Hydrogen Peroxide and Perborate, May 3, 2006
  - a. Akzo Nobel, Arkema/Atofina, Degussa, Elf Aquitaine, Solvay
14. Lysine, Case COMP/36.545/F3 . Amino Acids, June 7, 2000
  - a. < None from those listed in Table 1>
15. Methacrylates, Case No COMP/F/38.645 — Methacrylates, May 31, 2006
  - a. Arkema/Atofina, Degussa
16. Methionine: Case C.37.519 – Methionine, Comm'n Decision, 2002 (L 255) 1.
  - a. Rhone Poulenc/Aventis, Degussa
17. Methylglucamine: Case COMP/E-2/37.978 – Methylglucamine, Comm'n Decision (Nov. 27, 2002).
  - a. Rhone Poulenc/Aventis
18. Monochloroacetic Acid: Case COMP/E-1/37.773– MCAA, Comm'n Decision (Jan.19, 2005).
  - a. Akzo Nobel, Hoechst, Arkema/Atofina
19. Organic Peroxides: Case COMP/E-2/37.857 – Organic Peroxides, Comm'n Decision (Dec. 10, 2003).
  - a. Fides/AC Treuhand, Akzo Nobel, Arkema/Atofina, Degussa

20. Polyethylene, IV/31.866, LdPE, December 21, 1988
  - a. Fides/AC Treuhand, BASF, Shell, Bayer, Akzo Nobel, Hoechst, Atochem
21. Polypropylene, IV/31.149 - Polypropylene August 18, 1986
  - a. Fides/AC Treuhand, BASF, Shell, Solvay, Hoechst, Rhone Poulenc/Aventis, Atochem
22. Potash, IV/795 – Kaliand Salz/Kali Chemie, December 21, 1973
  - a. BASF, Solvay
23. PVC, IV/31.865, PVC, December 21, 1988
  - a. Fides/AC Treuhand, BASF, Shell, Solvay, Hoechst, Atochem
24. Rubber Chemicals: Case COMP/F/38.443 – Rubber Chemicals, Comm’n Decision (Dec. 21, 2005) (summary at 2006 (L 353) 50).
  - a. Bayer, Akzo Nobel (through Flexsys)<sup>15</sup>
25. Soda Ash, COMP/33.133-B: Soda-ash . Solvay, CFK, December 13, 2000
  - a. BASF, Solvay
26. Sodium Chlorate, Case COMP/38.695 – Sodium Chlorate, June 11, 2008
  - a. Akzo Nobel, Arkema/Atofina
27. Sodium Gluconate, [http://europa.eu/rapid/press-release\\_IP-01-1355\\_en.htm?locale=en#file.tmp\\_Foot\\_1](http://europa.eu/rapid/press-release_IP-01-1355_en.htm?locale=en#file.tmp_Foot_1), March 19, 2002.
  - a. Akzo Nobel
28. Sorbates: Case COMP/E-1/37.370 – Sorbates, Comm’n Decision (Oct. 1, 2003).
  - a. Hoechst
29. Synthetic Fibers, IV/30.810 - Synthetic fibres. July 4, 1984
  - a. Bayer, Hoechst, Rhone Poulenc/Aventis
30. Vitamins: Case COMP/E-1/37.512– Vitamins, Comm’n Decision, 2001 O.J. (L6)
  - a. BASF, Rhone Poulenc/Aventis
31. Woodpulp, IV/29.725 - Wood pulp, December 19, 1984
  - a. Fides/AC Treuhand

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<sup>15</sup> EC Decision at para 13, “The holding company for Flexsys is Flexsys Holding B.V. of which Akzo Nobel Chemicals International B.V. holds 50%, the remaining 50% being held by Solutia Inc and Solutia Europe N.V. together.”