

**Subject: FW: Public Comment on Remedies Topic A.1.**

**Date:** Monday, June 13, 2005 1:22 PM

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Dear Commissioners:

Attached is an excerpt of a draft research paper that is relevant to the Antitrust Modernization Commission's consideration of the treble-damages remedy in the context of international cartels.

The excerpt summarizes the main features of the global vitamins conspiracy, which is often regarded from the point of view of penalties as either the greatest success of antitrust jurisdictions around the world or the most egregious example of regulatory excess. My calculations (see the bottom row of Table 12) show that corporate monetary penalties in the United States did not exceed double damages. More importantly, from a global perspective penalties were at most 60% of the cartels' worldwide monopoly profits.

The paper's conclusions support treble damages in U.S. and foreign court system as a means of achieving international-cartel deterrence.

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[1] <#\_ftnref1> These estimates assume that a global cartel's U.S. profit comprise one-third of its total monopoly profits worldwide. Strictly national cartels would require seven- to 20-times penalties. These estimates ignore the legal fees paid by defendants. If legal fees are substantial, the required multiple to deter would be somewhat lower.

[2] <#\_ftnref2> It also shows that the full force of U.S. law is quite capable of deterring purely domestic cartels.

[3] <#\_ftnref3> His analysis predates the U.S. Sentencing Guidelines (USSG 1997) and ignores nonmonetary penalties, restitution, civil penalties, and tort suits.

*Excerpt from*

**PRICE-FIXING OVERCHARGES:**

**FOCUS ON EUROPE**

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\* This paper is derived from a November 2004 working paper that contains greater detail (Connor 2004b). The author is indebted to Professor Robert H. Lande, who contributed to the Motivation and Conclusions sections; he also was responsible for preparing the material on overcharges from antitrust verdicts in U.S. courts. Jeff Zimmerman was of great assistance in proofreading the final draft and rechecking the tables summarizing the social-science overcharges. Prepared for delivery at an ENCORE conference in Amsterdam, 14 April 2005.

## Abstract

This paper surveys hundreds of published social-science studies of private, hard-core cartels that contain 674 observations of long-run overcharges. The primary finding is that the median cartel overcharge for all types of cartels over all time periods is 25%: 18% for domestic cartels, 32% for international cartels, and 28% for all successful cartels. Thus, international cartels have historically been about 75% more effective in raising prices than domestic cartels. Cartel overcharges are skewed to the high side, pushing the mean overcharge for all types of cartels over all time periods to 49%. “Peak” cartel overcharges are typically double those of the long-run averages. These results are generally consistent with the few, more limited, previously published works that survey cartel overcharges.

There is no evidence that convicted cartels are markedly less effective than unpunished ones. The results of a second survey of final verdicts in decided U.S. horizontal collusion cases, only three of which were international cartels, show an average median overcharge of 21% and an average mean overcharge of 30%. Outside the United States, 62 decisions of competition commissions cited median average overcharges of 29% and a mean of 49%.

There are three significant policy implications. First, there is a view among some antitrust writers that there is little evidence that cartels raise prices significantly for a period long enough to justify the height of current U.S. cartel penalties. This survey's results, which are based upon an extraordinarily large amount of data spanning a broad swath of history of all types of private cartels, sharply contradict these views. In fact, the data suggest that U.S. penalties ought to be increased. Mean overcharges are three times as high as the level presumed by the U.S. Sentencing Commission. Surprisingly, bid rigging was no more injurious than other forms of collusion, which suggests that the USSC should amend its Guidelines that currently treat bid rigging more harshly than other forms of collusion.

Second, the principal antitrust authorities abroad often base their typical or maximum fines on a 10% harm presumption. *Average* fines imposed since 1995 by Canada and the EU on identical cartels have been lower than U.S. government fines, yet overcharges generated by cartels discovered outside the United States are higher than North America-centered cartels. Consequently, anticartel laws and fine-setting practices abroad are in even greater need of strengthening.

Third, cartels with multi-continental effects are the most harmful type. Despite the evident increases in cartel detection rates and the size of monetary fines and penalties in the past decade, a good case can be made that current global anticartel regimes are under-detering. While the recent worldwide trend towards the intensification of cartel penalties has been desirable, global cartels are more difficult to detect, have less fear from entry of rivals, achieve higher levels of sales and profitability, and systematically receive weaker corporate sanctions than comparable domestic cartels. Antitrust sanctions worldwide should be higher for global cartels than for other types.

## THE VITAMINS CASE

Perhaps the best documented global cartels are the bulk vitamins cartels of 1990-1999.<sup>1</sup> The full decision of the European Commission (EC 2003) reveals many details about 12 of the 16 vitamins cartels.<sup>2</sup> Information from the EC report has been combined with revelations surrounding the U.S. and Canadian prosecutions to reveal a magnificent portrait of the inner workings and market effects of these cartels (Connor 2005).

The 16 vitamins cartels were probably the largest, most harmful, and harshest sanctioned international cartels of the last twenty years. A total of 22 chemical manufacturers were fined, but the median number of colluding firms was only three. The size of affected commerce was most impressive: somewhere in the range of \$35.4 to \$47.4 billion. (Expressed in 2004 currency the total is about \$51.6 billion or € 43.8 billion). Sales during the conspiracies ranged from \$13 billion to \$125 million. Four of the cartels accounted for 77% of the total affected commerce: vitamins A, E, and C and feed premixes.<sup>3</sup> The sales of these global cartels occurred in vitally every county of the world, but were concentrated in North America (20%), the European Economic Area (29%), and Asia (about 55%).

The structural and market conditions were quite favorable to the formation of these cartels. First, the degree of seller market concentration was very high; at the start of

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<sup>1</sup> There is evidence that Hoffmann-La Roche had significant monopoly power in EU markets in the 1960s, but it lost market share from that time to the early 1990s (EC 1976). Thereafter Roche began to cooperate with BASF, Rhône-Poulenc, and some Japanese vitamin manufacturers in at least two cartels in the 1980s (EC 2003).

<sup>2</sup> The EC fined the choline chloride cartel in 2004, but the full decision has not yet been published. The EC chose not to fine the vitamin B3, B12, and feed premix cartels as of early 2005.

<sup>3</sup> The EC declined to prosecute Roche and BASF for fixing the prices of premixes because the companies asserted that there were no effects on prices of their discussions on these products. By a *per se* conspiracy standard the slim evidence presented in EC (2003) seems to confirm a violation. According to Joshua and Jordan (2004), the EU's competition law has already in practice been using such a standard for many years,

formal collusion around 1990, the mean degree of *global* market control by the members of the cartel was 93%<sup>4</sup>; the range was from 70% for vitamin B6 to 100% for carotinoids. The mean four-firm concentration ratio was above 90%. Similarly, the degree of buyer concentration was low.<sup>5</sup> Second, the products were almost perfectly homogeneous, and even at the monopoly price there were no substitutes.<sup>6</sup> Each of the vitamins was available in at least two forms: animal-feed grade and grades suitable for foods or pharmaceutical formulations. Some were available in 100%-pure forms and in different dilution rates (as low as 2% pure). The “human” grades sold at higher prices than the feed grades; feed grades could not legally be substituted for human use. Third, entry barriers were typically high: the methods of production were capital intensive, required years to build plants, and were frequently protected by patents of technical secrecy. In the four or five cases in which Chinese chemical firms could master the technology of production, the cartels fell apart after three to five years of successful collusion. Fourth: nearly all of the cartels were formed immediately after a period of falling prices and profits.

The vitamins cartels were quite effective. In terms of duration, the mean was 6.2 years. In terms of the direct overcharges on buyers (roughly equivalent to monopoly profits), the total amount worldwide was between \$8.8 and \$11.5 billion: about \$2 billion in North America and \$2.7 billion in the EU. For all 16 cartels, the overcharges amounted to between 21% and 28% of affected world commerce; in both North America the range was 25% to 29% of sales, while in Europe the range was 21 to 32%. Clarke

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<sup>4</sup> In Europe the weighted mean average was 91%, and in the United States 90%.

<sup>5</sup> Quantitative data on this point are not available, but in the single cartel in which the participants complained of buyer behavior (vitamin C), the conspirators developed a method of bid rigging and customer allocation that seem to solve the problem. Another problem faced by the cartels was geographic arbitrage by vitamin wholesalers and dealers taking advantage of swings in currency exchange rates. This challenge was solved with quarterly price adjustments in prices to equalize them across currency zones.

<sup>6</sup> Each vitamin serves unique metabolic functions in animals, and each is produced with unique methods and raw ingredients.

and Evenett (2002, 2003) have calculated the vitamins overcharges to be higher in less developed countries and higher still in those countries with no effective antitrust enforcement. The overcharges are only one part of the effect on consumer welfare, the other being the dead-weight social loss. Less is known about the dead-weight loss because to derive this loss one needs to know the elasticity of demand (Peterson and Connor 1996). However in most manufacturing industries the dead-weight loss is between one-fifth and one-tenth as large as the overcharge. Most research on cartels focuses on overcharges rather than the social loss because most legal systems of cartel enforcement are based on the deterrence principle and optimal deterrence is related to the overcharge.

Monetary sanctions imposed on the vitamins cartel were the largest in history. U.S. government fines totaled \$915 million, Canada's \$100 million, the EU's \$847 million, and other governments only \$17 million. However, almost half of the total sanctions originated from private suits brought in U.S. courts.<sup>7</sup> While it is difficult to get precise amounts of private settlements (most are confidential), enough information has leaked out to estimate a \$2.2 to \$2.7 billion range. Thus, the total monetary penalties so far are between \$4.7 and \$5.2 billion.

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<sup>7</sup> A few small private settlements have been made in Canada. Such cases are still being tried in Australia and the UK. Moreover, there is a very important decision to be made in 2005 in *Empagran v. Roche* by the District of Columbia Appeals Court; if plaintiffs win, billions more in settlements could be forthcoming.

Table 12. Vitamins: Monetary Sanctions Relative to Overcharges (percent)

Product Market	U.S. Govt	Private	U.S. total	Can- ada	EU	Oth- er	World
Beta carotene	62	142-167	204-329	71	48	0	83-101
Canthaxanthin	0	200-250	200-250	0	49-57	0	27-30
Biotin (H)	0	235-261	235-261	40	0	0	62-78
Choline chloride (B4)	8-11	110-146	118-157	14	239-277	0	50-61
Folic acid (B9)	0	137-275	137-275	0	0	0	28-35
Vitamin A	44	109	153	66	30	0.3	17-23
Vitamin B1	0	125	125	0	0	0	17-23
Vitamin B2	127	273	400	90	81-129	0	100-150
Vitamin B3	84- 173	124-256	208-429	16	0	0	21-30
Vitamin B5	77	131-155	208-232	127	80-90	0.3	38-54
Vitamin B6	0	59-94	59-94	0	0	0	7-5
Vitamin B12	0	163-190	163-190	920	0	0	8-11
Vitamin C	63-88	144-176	207-264	76	30-60	1.3	57-94
Vitamin D3	0	0	0	0	126-152	0	42-54
Vitamin E	42-46	110-130	152-176	74-94	21-55	0.8	46-70
Feed Premixes	64-55	86-114	150-369	79- 102	0	0	32-48
Total	43-55	103-154	171-208	70-78	26-40	0.3	41-60

The best way of assessing the size of monetary sanctions on cartels is as a percentage of the overcharge (Table 12). The U.S. Department of Justice has a fearsome reputation for the size of its fines, but these data tell a different story. In only two cases (B2 and B3), did U.S. fines possibly exceed the profits made by the cartel, and on average the fines were only about 50%<sup>8</sup>. Private suits were far more effective in extracting cartel profits, returning 100% to direct buyers in almost every case (restitution) and imposing significant punitive penalties (amount above 100%) as well. Where the government did not obtain criminal guilty pleas, private parties had a legal disadvantage that resulted in smaller settlements (for example, see vitamin B6). On average the U.S. legal system made the vitamin defendants pay about double their illegal gains. In Canada, private suits are not so common, but the Canadian Competition Bureau was harsher in assessing penalties than was the DOJ.

The European Commission's fines were weaker than those in North America, amounting to only 26 to 40% of the EU's overcharges, for several reasons. Although the EU's fines were almost as large as those by the United States, the EU's sales and overcharges were much larger. Moreover, the slow pace of the EC procedures allowed four cartels to escape fines because of the five-year time limit. Failing to prosecute the huge feed premix cartel was, in my view, a mistake. The absence of private suits in Europe is a glaring difference compared to North America. Finally, the EU's guidelines for assessing cartel fines since 1998 err in paying no direct attention to affected sales or overcharges. However, there is one piece of upbeat news in Table 12, namely the recent EU fines on the choline chloride cartel. By my estimate, Nellie Kroes's first cartel fine rises to new heights – about 250% of the cartel's EU overcharges.

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<sup>8</sup> Moreover, the DOJ chose to skip seven cartels altogether; speed seems to be important in cartel cases.

Finally, note the extremely low fines imposed on the cartels outside of North America and Europe. Recall that more than half of the cartel's affected sales were in Asia and Latin America, yet virtually no monetary sanctions were imposed on these continents. This is a sad commentary on the state of antitrust institutions in Asia, but more importantly it shows why global cartels continue to be discovered. Even the ones that are caught keep most of their profits from price fixing!

Can today's antitrust penalties deter global cartel formation? In a word, no.<sup>9</sup> The most harshly sanctioned international cartel in world history gave up at most 60% of its monopoly profits in the form of penalties. When one factors in the indubitable fact that the probability of being detected by an antitrust authority is less than 33%, the argument for sub-optimal deterrence is un rebuttable.

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<sup>9</sup> This conclusion might not apply to U.S. cartels in operation since the 1993 leniency program was initiated.