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A Case of Predatory Pricing?**

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**EUROPEAN UNIVERSITY INSTITUTE, FLORENCE**

**ECONOMICS DEPARTMENT**

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Printed in Italy in January 1993  
European University Institute  
Badia Fiesolana  
I – 50016 San Domenico (FI)  
Italy

# The AKZO Decision: A Case of Predatory Pricing?

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September 1992

## Abstract

In December 1985, a fine was imposed on the Dutch multinational AKZO for predatory abuse of a dominant position. An appeal by AKZO was rejected by the Court of Justice of the Communities in July 1991. This note suggests that, according to the facts reported by the Commission itself, this is a case of active competition, not of predation.

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# Introduction

In December 1985, a fine of 10 million ECU, payable in guilders, was imposed on AKZO Chemie BV by the Commission of the European Economic Communities<sup>1</sup> for infringement of Article 86 of the Roman Treaty, that is, for abuse of a dominant position. AKZO allegedly abused the dominant position which it holds in the EEC organic peroxides market by a policy of selective and below-cost price cutting designed to damage the business of Engineering and Chemical Supplies Ltd (ECS), a small producer of organic benzoyl peroxide in the United Kingdom, and to exclude it as a competitor. Although the concept of “predatory pricing” is not used explicitly by the Commission, it is clear from the arguments used that the Commission did consider the alleged abuse as predatory. Is this a correct interpretation of the facts (as described in the decision)? This note argues that it is not.<sup>2</sup>

## 1 The Facts<sup>3</sup>

AKZO Chemie, a division of the Dutch multinational chemical and fibres group AKZO NV, is a multimarket multiproduct firm, for which the UK market for flour additives — on which the alleged aggression occurred — is a relatively small sub-market. ECS, on the other hand, is a small privately owned company whose principal activity is the production of flour additives including benzoyl-peroxide-based bleaching agents. In the EEC, the use of this particular bleaching agent for flour is authorized only in the United Kingdom and Ireland. There is therefore a well delineated local market for this particular flour additive.

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<sup>1</sup> *Official Journal of the European Communities*, No L374 of 31 December 1985.

<sup>2</sup> An appeal by AKZO was rejected on 3 July 1991 by the Court of Justice of the Communities. See *Recueil de la Jurisprudence de la Cour et du Tribunal de première instance*, 1991, vol. 7, Part I, pages I-3439-3477. The Advocate-General of the Court, C.O. Lenz, had concluded on 19 April 1989 that AKZO's appeal should be accepted on the grounds that the Commission did not prove that AKZO had a dominant position! See pages I-3396-3438 of the same *Recueil* ....

<sup>3</sup> In this section the facts, as reported by the Commission, are put in a chronological order. In the published decision, facts are reported in the order necessary to corroborate the different arguments advanced to prove abuse of a dominant position with reference to Article 86 of the Roman Treaty.

However, benzoyl peroxide (BP) is also (and mainly) used as an initiator in the polymer industry. Let us denote this use as the “plastics market”. In 1979, ECS began to produce benzoyl peroxide products for the bulk polymer industry and to sell these in the UK. By September 1979, a first shipment was dispatched to BASF of Ludwigshafen (Germany), one of AKZO’s major customers in the polymer industry, at a price 15 to 20% below AKZO’s then price. ECS thus first entered AKZO’s UK sub-market for plastics and then entered one of AKZO’s continental plastics markets, which AKZO shared with smaller suppliers.<sup>4</sup>

What was AKZO’s reaction? Its first reaction was a series of threats, which the Commission describes as follows (*O.J.*, L374/7, K 26):

“ECS alleged that the AKZO reaction to its expansion was swift. On or about 14 November 1979 senior AKZO UK representatives had requested an urgent meeting with ECS which was scheduled for two days later. ECS alleged that in this first meeting direct threats were made by AKZO UK, that unless ECS withdrew from the plastics market retaliation from AKZO UK would follow in the form of both overall price reductions and selective cuts aimed at ECS’ customers. These price reductions would be concentrated in the flour additives sector as it would cause the most harm to ECS. AKZO UK had said it was prepared to go down to below cost if necessary, the more profitable side of its business supporting the price reduction venture (...). An alternative possibility canvassed by AKZO was that it might even buy out ECS so as to neutralize the competition. ECS also alleged that a second meeting took place about a fortnight later when the AKZO UK representatives were joined by the head office product manager from AKZO Chemie in the Netherlands and the threats were repeated. A few days later ECS applied for and was granted an injunction under Article 86 of the EEC Treaty in an *ex parte* hearing in the High Court in London.”

From a legal point of view, these threats are important, since they can be (and were) used by the antitrust authority to establish predatory intent, the more so as

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<sup>4</sup> The scenario strongly resembles the one imagined by Easley *et al.* (1985), except that AKZO did not have the monopoly of the sub-markets in which entry occurred.

they were directed to the flour additives market rather than the plastics market. For the economist, the interesting question (not considered by the Commission) is whether AKZO's threat was a credible one.<sup>5</sup> It occurred after two successive entries in AKZO's British and German sub-markets for plastics. The fact that the fight would have been located in the UK market for flour additives, ECS's main market, rather than in the plastics markets where the entries occurred, implied more harm to ECS and smaller costs to AKZO, and thus did not reduce its entry-detering nature. From a game-theoretic point of view, we have a repeated game situation of the chain store paradox type. However, it is well known that in perfect sub-game equilibrium, threats of this nature are not credible in such games when information is perfect and complete. On the one hand, AKZO was perfectly informed about the entrant's moves. On the other hand, given the long history of friendly collaboration between the two firms in the UK market for flour additives, it is unlikely that there was (that Mother Nature had chosen) a positive probability that AKZO is a predator — as in Kreps and Wilson (1982) — so that information was “complete”. Notice indeed that, all through the seventies, AKZO had in fact fixed the UK prices for flour additives (with regular increments of 10%) and that ECS had always followed these increases.

At any rate, whether the threat was credible or not, a settlement was reached out of court. AKZO agreed to pay ECS's legal costs and undertook not to reduce its normal selling prices for benzoyl peroxide in the UK or elsewhere for either plastics or flour additives. In the game-theoretic jargon, AKZO made a binding commitment to eliminate predation from its action set, thus indicating that it was willing to collaborate. AKZO probably expected ECS to remain a price follower on the flour additives market. That this is a reasonable explanation is confirmed by the fact that AKZO again *increased* its prices for flour additives to its UK customers by 10% in early 1980, that is, right after the settlement.

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<sup>5</sup> AKZO claims that the meetings had been a mere “communications exercise” to explain that a “more competitive” sales policy for flour additives would be adopted. According to the Advocate-General of the Court, a senior sales manager of AKZO UK wrote a note stating that he thought the threats were “vain” (menaces “vaines”) since AKZO had admitted previously that its flour additives branch was not profitable. This manager also indicated that he did not think AKZO would (or intended to) launch a price war and that it wanted ECS out of the flour additives market. See *Recueil de la Jurisprudence de la Cour ...*, 1991, vol. 7, Part I, pages I-3419-3420.



The preceding sets the stage for the events to come. ECS's complaint to the EEC Commission (in June 1982) was indeed based on the claim that AKZO had attempted to put it out of business by a sustained and systematic campaign of price cutting since the end of 1980.

In order to be able to follow the story of this price undercutting, it is necessary to describe the structure of the flour additives market in the UK and Ireland on both the supply and the demand side. There were three suppliers of a full range of flour additives, with the following market shares (in 1982):

AKZO UK: 52%

ECS: 35%

Diaflex: 13%.

(Note that Diaflex bought its raw material, concentrated benzoyl peroxide, from AKZO.) The customers and their buying shares were:

RHM, Spillers and Allied Mills: 85%

"Large independents": 10%

"Small independents": 5%

with RHM, Spillers and Allied Mills of roughly comparable size. These customers were supplied as follows:

RHM: by AKZO and Diaflex;

Spillers: by AKZO and, in second order until 1982, by Diaflex;

Allied Mills: by ECS (and one of the mills by AKZO);

Independent mills: ECS had 2/3 and AKZO 1/3 until 1982. (From 1982 onwards, AKZO had 2/3 and ECS 1/3.)

In other words, ECS did not supply RHM nor Spillers. Its prices to Allied Mills, its sole major customer, were generally about 10% below AKZO UK's prices to the two other majors. Its prices to the independent mills were also substantially below AKZO UK's. In spite of this price differential, AKZO UK had been able to maintain its share of the market, including the larger part of the business of RHM and Spillers. ECS maintained that its production costs were lower than AKZO UK's and stated that it obtained reasonable profit margins before AKZO's subsequent price undercutting.

When AKZO UK increased its prices to its usual UK customers in early 1980, ECS did not react, as it had done over the past decade, by following the price increase. Instead, it kept its 1979 price, so that the customary price gap between ECS and AKZO widened. AKZO's two main customers (the milling groups Spillers and RHM) then asked ECS for a quotation for supplying flour additives. The Commission describes ECS's answer as follows (*O.J.*, 374/9, §36 and 37):

“(…) In March 1980 ECS quoted to Spillers prices of £532 per tonne for BP 16% and £336 per tonne for PB (potassium bromate) 10%. (These quotes corresponded exactly with the prices then offered by ECS to Allied Mills (its main customer) while AKZO UK's prices to Spillers were then £605 and £405, respectively.) The response of AKZO UK (whose representative was shown the ECS quotation) was that it did not wish to lose any business whatever to ECS and it adjusted its price downwards to match the ECS quote.

(…)

Later in the year (towards October) Spillers requested quotations for a fixed price contract of six or 12 months' duration from all three suppliers of flour additives. ECS again quoted for its standard product the same prices as it had offered earlier in the year, but at the request of Spillers reduced prices of £512 and £309 were offered for a special cheap mixture using only gypsum instead of the normal inert filler. Later the offer for the cheap mix was increased by ECS by £5,90 to cover the cost of an additive to ensure better flow characteristics. Diaflex also quoted, initially, £530 and £335 per tonne; then a reduced offer of £517 and £327 for 12 months or £490 and £310 for a six months' contract. (The Diaflex product uses the cheaper gypsum filler.)

Spillers again gave AKZO UK full details (including copy correspondence) of the quotes received from both the other suppliers. With the knowledge of what the other suppliers had offered, AKZO UK quoted for its standard formulation £489 and £309 (thus undercutting by £1 per tonne the lowest

price which had been offered by either of the other suppliers for a cheap mix) and took the business on the basis that Spillers obtained its total requirements from AKZO UK.”

AKZO's other main customer (the milling group RHM) almost simultaneously made similar moves and received similar quotations from ECS, which were matched by AKZO. However, in late 1980 AKZO did launch a counter-attack, by approaching ECS's main customer (Allied Mills) — first as a group and then through its individual members — with new prices of £517,90 and £314,90. In December 1980, AKZO also approached the independent mills with special offers. The end of the story is this (*O.J.*, L 374/11, §41):

“The result of these systematic low price offers from AKZO UK — which were assiduously followed up — was that ECS gradually lost the business of its three most important large independent customers plus several individual Allied Mills. The custom of the remaining mills was only kept by price reductions to match the AKZO UK quotes. In about January 1983 AKZO UK lowered its price offers to the Allied Mills and to the independents still further, and ECS to retain its customers was again obliged to decrease its prices despite substantial cost increases for labour and raw materials.”

In July 1983, minimum prices for flour additives were imposed on AKZO by the Commission (Decision 83/462/CEE of 29 July 1983) as a provisional measure.

## 2 Predatory Pricing or Active Competition?

Is this a story of predatory pricing or of active competition? Economic theory<sup>6</sup> suggests that predatory pricing occurs only if a number of conditions are simultaneously met. First, the aggressor is a multimarket firm (possibly a multi-product firm). If we assume that AKZO was the aggressor, then this first condition is obviously met. Second, the predator attacks after entry has occurred in one of its markets. At the end of 1979, ECS

<sup>6</sup> For more details, see Philips (1988, Chapter 7).

did enter AKZO's plastic market, both in the UK and in Germany. AKZO's reaction to this entry was a series of threats, followed by an increase in its prices for flour additives to its UK customers by 10%. It was a "regular" price increase: for years, AKZO had been increasing its prices every year by 10%. This is the behaviour of a dominant firm, convinced that it still is the price leader. No predation so far!

In fact, it was ECS that started cutting prices by not following the price leader, with the result that the customary price differential between ECS and AKZO widened. Even more, ECS went as far as to make offers at its earlier prices to some of AKZO's main UK customers. Clearly, ECS turned into a price setter and started a price war to get the price below the new price quoted by AKZO. Given the settlement reached in 1979, ECS could expect AKZO's hands to be bound.

AKZO had no choice but to follow by adjusting its prices to the quotations made by ECS. In what was practically a duopoly situation — Diaflex did not count much — the only price it could adjust to was the competitor's price. It is hard to understand, therefore, in what sense the Commission objects in §40 of its decision to AKZO's not calculating its low prices "by reference to a market price or the price then being paid by the customer". (When, later on, ECS had to adjust to quotations made by AKZO, the Commission did not find this objectionable.) To construe AKZO's price adjustment as a case of predatory pricing, one would first have to establish a direct link between ECS's 1979 entry into the plastics market and an attack by AKZO. We do not see any such link. AKZO's "counter-attack" (around December 1980) appears as the reaction of a dominant firm that lost its price leadership and tries to discipline a small deviant. Since this sort of discipline, as displayed by ECS in the seventies, is not objected to by the Commission, it is difficult to find efforts to restore it objectionable, the more so as in the event these efforts led to more price competition.

Our reasoning, in the preceding paragraphs, is based on the assumption that ECS had acquired a sufficiently large cost advantage to become the price leader, its small size notwithstanding. Note, indeed, that the price leader is not necessarily the firm that has the largest market share (see Ono, 1982, p. 15). AKZO does not seem to have understood this. Nor did it understand that, if ECS was truly the new price leader, it was in AKZO's interest to become a follower (as shown by Ono, 1978). To

counter-attack ECS was then disequilibrium behaviour.

In Article 1 of its decision, the Commission makes the point that AKZO infringed Article 86 of the Roman Treaty by offering flour additives to the customers of ECS, in this counter-attack, "at unreasonably low prices designed to damage ECS's business viability in that ECS was obliged either to abandon the customer to AKZO Chemie BV or to match a loss-making price in order to retain the customer." It would be rather tedious to go through a detailed comparison of the individual price quotations. The following remarks should suffice to raise serious doubts about the Commission's claim: 1) Since ECS did not follow AKZO's 10% price increase, it may be thought that the 1979 prices were profitable enough for ECS (possibly because of its declared cost advantage); 2) If ECS's cost advantage was of the order of 10%, then AKZO's undercutting could not have been too damaging: its price quotations were of the order of 2%, 5%, 8% or 11% below those of ECS, depending on whether the customer was its own or that of its competitor; 3) By January 1983, ECS was still resisting the price cutting, retaining at least 70% of its 1980 sales level.

Note, finally, that to establish effective predation, it would remain to show that ECS's entry value became negative in the plastics market and that AKZO was able to compensate its alleged losses in the UK flour additives market by later gains in its plastics markets resulting from blocked or delayed entry. No evidence to that effect was made available nor even discussed by the Commission. Not only did ECS continue its sales in the plastics market — which, as such, is not incompatible with predatory pricing — but it even took, in 1981, a minority share in a German company that acts as its agent for its sales in the continental plastics market. If anything, this suggests that ECS's entry value remained positive in that market.

To sum up, it is clear to us that the UK flour additives market moved from a dominant firm situation towards a more competitive one as a result of the initial low price quotations by ECS (possibly resulting, in turn, from a miscalculation about AKZO's reaction). The story told is one of active competition, initiated by ECS.

## References

- EASLEY, D. MASSON, R.T. and R.J. REYNOLDS (1985) "Preying for Time", *Journal of Industrial Economics* 33, 445-60.
- KREPS, D. and R. WILSON (1982) "Reputation and Imperfect Information", *Journal of Economic Theory* 27, 253-79.
- ONO, Y. (1978) "The Equilibrium of Duopoly in a Market of Homogeneous Goods", *Economica* 45, 287-295.
- ONO, Y. (1982) "Price Leadership: A Theoretical Analysis", *Economica* 49, 11-20.
- PHILIPS, L. (1988) *The Economics of Imperfect Information*, Cambridge: Cambridge University Press.



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