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E.CA COMPACT

Mar 2012

How to deal with price wars in cartel damages estimations?

A standard approach to damages estimation is to compare prices during the cartel period with prices before or after. However, it is not uncommon to see price wars right after the cartel breaks down. As price wars are characterised by prices below the competitive level, an inclusion of price wars in the comparison period can lead to overcharges that are too high. This E.CA Compact explains how we modelled the price war period in the example of a German cement cartel.

In spring 2002, the Federal Cartel Office ("FCO") uncovered a cartel that had lasted from 1997 to 2001 in the German cement sector. It fined the six largest companies according to the estimated cartel gain a total of € 660 million – the largest fine ever imposed for cartel infringement in Germany.

The FCO calculated the level of fines based on a comparison of average prices during and after the cartel. Several parties appealed against the decision to the Higher Regional Court, claiming that the approach overstated actual gains. In 2009, the Higher Regional Court appointed E.CA Economics (formerly ESMT Competition Analysis) as an economic expert to estimate the illicit gains.[1]

Central challenge of the during-and-after comparison

We proposed a refined during-and-after approach for estimating the price overcharge explicitly taking changes in cost and demand factors into account. One of the central challenges proved to be that the period following the end of the cartel was characterised by a fierce price war.

Price wars are typically characterised by prices below the competitive level. Considering the price war as part of the after-cartel comparison period would therefore likely overestimate the overcharge.[2]

However, ignoring all of the affected price observations would have resulted in only a few after-cartel observations. In order to use the information available during the price war, the price war period was explicitly modelled in the econometric analysis.

Confirming the price war

There was ample evidence of a price war following the cartel breakdown:

- Evidence existed for a dynamic low-price strategy, called "Operation Skunk", which aimed to eliminate the firm which had decided to deviate from the cartel agreement. Confidential documents on this operation were revealed in the German press.
- Furthermore, prices in the relevant period were below the long-term average costs for producing cement, and there were indications that cement had been sold below marginal cost.

[1] Prof. Lars-Hendrik Röller, supported by Dr. Hans W. Friederiszick, was the appointed court expert.

[2] A more formal argument is that prices during the price war are potentially linked to (inflated) prices during the cartel period: punishment is to some extent a consequence of a deviation from a previously jointly pursued cooperative price path. Those prices do not, therefore, offer a conduct-free price observation.

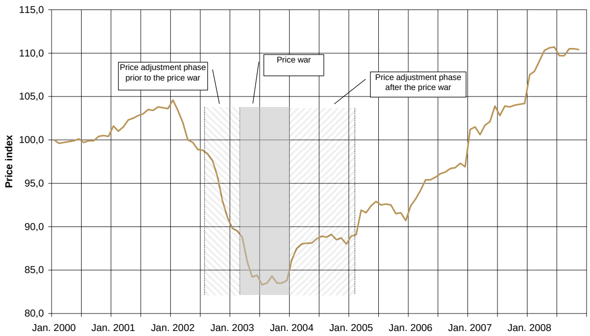
- Finally, standard cost and demand measures, while explaining actual prices fairly well outside the price war period, failed to explain prices during the price war.

Accordingly, it was concluded that a price war existed and that this period must not be used as a benchmarking period.

Modelling a price war

The price war was characterised by a period of steeply falling prices following the breakdown of the cartel, a period of very low prices and a recovery period where prices picked up again (see graph below).

Price war phases



Source: E.CA Economics.

The development of prices could not be adequately captured by a simple indicator variable: standard indicator variables are designed to capture level effects; a single indicator variable would thus not pick up price differences during the different phases of a price war.

In order to more accurately control for price movements during the price war, we included three different indicator variables and allowed for a gradually increasing and declining price war effect (“bath tub approach”):

- **Price decline phase**: Prices fell steeply right after the dawn raids of the FCO. Exploratory regression analyses using monthly dummies in the period following the cartel breakdown showed that the price decline which lasted several months could not be explained by other control factors. In order to capture this price fall we included a linear trend variable for the relevant period.
- **Price floor phase:** Following the price decrease, prices remained temporarily stable at an unprofitable, low level. This was captured by a standard indicator variable covering several months.
- **Price recovery phase**: Prices started to recover about a year after the dawn raids. As industry insiders indicated that price recoveries usually takes much longer than price drops, we assumed as a rule of thumb that the recovery period lasted twice as long as the initial price fall. Again, the price increase during the recovery period was captured by a linear trend variable.

In addition to the peculiarities of the price war, the price comparison took changes in cost and demand factors during and after the cartel breakdown into account. The robustness and sensitivity of the results were established through various alternative estimations, in particular allowing variations with respect to the length of the three price war periods.

Results

The analysis resulted in significant region-specific price overcharges ranging from € 4.87 per ton to € 5.10 per ton in the period from 1997 to 2001 (except for the northern part of Germany) implying a percentage overcharge of around 7–8%.

The Higher Regional Court confirmed the damages estimate carried out by E.CA Economics and fined the cartelists roughly € 330 million in fines in 2009.[3]

The lower total damages found by the court compared to the estimate of the FCO are partially due to the different approach regarding the price war period. Furthermore, in contrast to the FCO, the court took into account that the higher prices resulted in reduced quantities sold during the cartel period.[4] Additionally, the court applied some discounts to account for data quality issues.

[3] See recital 571 of the publicly available decision (VI-2a Kart 2 -6/08 OWi). An appeal to the highest German court against this decision is still pending.

[4] The higher prices that result from an effective cartel normally result in lower sales for the cartel members when compared to a competitive situation. This “quantity effect” reduces illicit gains and was therefore taken into account in the overcharge calculations.