

Fighting Cartels

Fighting Cartels

– why and how?

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Preface

This book documents the proceedings of The 3rd Nordic Competition Policy Conference on Fighting Cartels – why and how, held in Stockholm on 11–12 September 2000 and organised by the Swedish Competition Authority. The first two conferences in this series were held in Oslo in 1996 and 1998 and were organised by the Norwegian Competition Authority.

This conference, as well as the former conferences, was intended as a meeting place and a forum for discussion for practitioners of competition law and policy in authorities and business community and representatives of the academic and research communities.

The focus for this conference, Fighting Cartels – why and how, was to raise both legal and economic aspects on why we should be concerned with cartels, how to detect and find sufficient evidence of cartel behaviour and how to accomplish an effective prevention of cartels. The theme reflects the growing concern in Sweden as well as internationally for the detrimental effects of cartels on society. The participation of the Commissioner for Competition, Mario Monti, confirmed the importance of fighting cartels.

The proceedings include invited contributions from leading experts within each field. The concluding panel discussion is not reflected in this book.

The Swedish Competition Authority is grateful to everybody who made this conference possible and hopes that this book will contribute to further discussion and improvement of methods for fighting cartels.

Stockholm, February 2001

Anita Sundberg

Project Leader

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Introduction

Ann-Christin Nykvist

When we had to decide the theme for The 3rd Nordic Competition Policy Conference it was an easy task. The “fighting of cartels” is given a high priority at the Swedish Competition Authority as well within the European Union and in other parts of the world. Cartels that damage the interests of consumers are a very serious form of economic crime and cannot be accepted. However, identifying, detecting and proving cartels is a difficult task that requires a combination of law and economic competencies. Furthermore there is often need for competition authorities in different parts of the world to co-operate in these matters – companies do not allow themselves to be restricted by national borders.

So, there are many reasons why “fighting cartels” is a convenient theme for an international competition policy conference. That thought was indeed confirmed by the fact that the conference aroused a great interest internationally and assembled participants from many countries.

To our satisfaction we were able to present speakers and debaters with great competence and extensive experience from different parts of the world. Leading representatives for law as well as economic disciplines contributed to the success of the conference.

The question of “why”

Harmful cartels between companies do exist in all parts of the world and must be counteracted. Sometimes, however, it has been alleged that cartels hardly exist today in countries with modern competition legislation and modern enforcement institutions.

It would be naive to believe that companies in general, which operate today in a more international environment than ever before, would obey strictly the anti-trust rules in one particular country and not in others. The US Department of Justice illustrated that very clearly during the conference. Efficient competition legislation certainly has strong preventive effects but cannot really impede companies from engaging in harmful cartel activities when there are very substantial profits to be made.

Market economy and free trade foster growth and prosperity. There is a need of co-operation over the frontiers in order to achieve more effective functioning of markets. Then a distinction must be made between the interest companies may have to co-operate in order to strengthen their competitiveness and use their market power, on one hand, and efficient competition on the other, that leads to development and better market performance, to the benefit of consumers. But this does not mean that efficient competition is to the companies' disadvantage. On the contrary, there are proofs that it gives the soil for a competitive trade and industry in the long run.

Many competition authorities in all parts of the world attach great importance to the detection of cartels and such priority is absolutely necessary to effectively counteract these serious restrictions of competition.

The question of "how"

There are, however, different views on how cartels could be defined and detected and on what instruments competition authorities should use to fight cartels that are detrimental to consumers.

Serious anti-competitive practices are, almost by definition, kept behind locked doors. Competition authorities have different ways and means to collect the necessary evidence that could bring these harmful practices to an end. The instruments at our disposal could certainly be improved to make our work more efficient. Greater importance is now being attached to economic analysis, to prove not only the existence of collusive behaviour, but also the harm done, that is, the extra profits made by the cartel members. I would also like to underline what Commissioner Monti said at the conference about the importance of co-operation between competition authorities. No doubt, cartel activities do not stop at national borders.

It should also be remembered that most companies do not engage in unlawful activities. All those companies, their representatives and organisations have an important role to play, to see to it that equal conditions of competition prevail on their respective markets. Hence there is no wonder that complaints from competitors and clients, that are lodged with competition authorities are often the starting point for successful detection of serious restrictions of competition.

Globalisation, the rapid development in the field of information technology, electronic commerce and the so-called new economy are all current phenomena that bring about new challenges for companies as well as for competition authorities.

Our expectations from the conference were abundantly fulfilled. The conference provided the participants with many new ideas on how to

make more effective the instruments we have to our disposal for fighting cartels. These will be useful in the unceasing work of breaking up cartels that are damaging to the very fabric of our society. As far as I am concerned the conference provided an appetite for still more co-operation between competition authorities, researchers, organisations and others in preserving economic prosperity. I hope that also the readers of this book will find this interesting.

1 Why should we be concerned with cartels and collusive behaviour?

Mario Monti

Introduction

I very much welcome the initiative taken by the Swedish Competition Authority to arrange this conference and I am very honoured to give the opening speech.

Fighting cartels is one of the most important areas of activity of any competition authority and a clear priority of the Commission. Cartels are cancers on the open market economy, which forms the very basis of our Community. By destroying competition they cause serious harm to our economies and consumers. In the long run cartels also undermine the competitiveness of the industry involved, because they eliminate the pressure from competition to innovate and achieve cost efficiencies.

Recent anti-cartel actions of the Commission and other competition authorities clearly demonstrate that in spite of our efforts cartels continue to exist. Moreover, since by nature cartels are secret and therefore difficult to uncover, it is likely that what we are seeing is only the tip of the iceberg. In the words of Adam Smith there is a "tendency for competitors to conspire". This tendency is of course driven by the increased profits that follow from colluding rather than competing. We can only reverse this tendency through tough enforcement that creates effective deterrence. The risk of being uncovered and punished must be higher than the probability of earning extra profits from successful collusion.

As Commissioner responsible for competition I am determined to further strengthen our fight against cartels. Our efforts to reform the rules implementing Articles 81 and 82 are very important in this respect. However, before dealing with the issue of effective enforcement, I would like to begin by saying a few words about the anatomy of cartels and why fighting them should be a priority.

The anatomy of cartels

As you all know, a cartel is essentially an agreement to limit output with the objective of increasing prices and profits. In practice, this is generally done by means of price fixing, allocation of production quotas or sharing of geographic markets or product markets. It is important,

however, to keep in mind that harmful collusion does not need to take the form of a full-blown cartel. Less elaborate structures such as information exchanges can also lead to significantly higher prices.

Cartels differ from most other forms of restrictive agreements and practices by being “naked”. They serve to restrict competition without producing any objective countervailing benefits. In contrast, a joint venture between competitors, for example, while restricting competition may at the same time produce efficiencies such as economies of scale or quicker product innovation or development. In these cases a proper analysis requires that the positive and negative effects are balanced against one another. This is not so with cartels. In cartel cases the positive side of the equation is zero. There are simply no countervailing benefits.

Cartels, therefore, by their very nature eliminate or restrict competition. Companies participating in a cartel produce less and earn higher profits. Society and consumers pay the bill. Resources are misallocated and consumer welfare is reduced. It is therefore for good reasons that cartels are almost universally condemned. Of all restrictions of competition, cartels contradict most radically the principle of a market economy based on competition, which constitutes the very foundation of the Community. Even those who sometimes criticise competition law as being a form of interventionism into the free play of market forces, accept the prohibition of cartels as inevitable. Indeed, there is nowadays a consensus that, using the words of Professor Lipsky, “no economy that claims to be free can exist without effective deterrence of cartels”.

Which sectors are particularly concerned?

As we all know, cartels do not occur with the same frequency in all sectors. Indeed, some sectors have been particularly prone to cartelisation. These sectors are generally characterised by a relatively high degree of concentration, significant barriers to entry, homogeneous products, similar cost structures and mature technologies. In such stable sectors it is easier to reach consensus on the collusive outcome and to maintain it. The steel, cement and chemical industries can be mentioned as examples of sectors that fit this description and in which the Commission has in the past uncovered cartels.

However, our experience shows that cartel behaviour is not limited to such traditional industries. Recent investigations concerning price fixing in the banking sector and the liberal professions demonstrate that we should certainly not lose sight of other sectors.

It is also interesting to note that in sectors with large number of operators, cartels have virtually always been operated by a trade asso-

ciation. One recent study has found that trade associations were involved in most of the cases that involved more than 10 undertakings¹. Moreover, in some cases, such as these concerning liberal professions, the rules of the association can be a very effective weapon in maintaining discipline.

When examining the anatomy of cartels, we must also take due account of the impact of globalisation and new technologies. Recently we have seen the emergence of global cartels, and in some cases collusion is facilitated by new technologies that allow for rapid dissemination of information and create more transparency in the market.

The damage caused by cartels

It would be a serious mistake to downplay the effects of cartels. The damage caused by cartels to the economy and consumer welfare is substantial and has in fact been underestimated for a long time. Estimations by the OECD in its recent *Report on Hard Core Cartels*² have provided dramatic figures. The average increase from price fixing is estimated to amount to 10% of the selling price and the corresponding reduction of output to be as high as 20%. In some recent big cases prices have been increased by the cartel participants 30% and 50%³.

From the perspective of the Community it is also important to keep in mind that illegal cartels can seriously undermine our efforts to liberalise and integrate our markets. They can also limit the benefits promised by the introduction of the Euro.

It is essential to ensure that the removal of state measures that have shielded companies from competition are not being replaced by collusion, having the same effect. Companies that have been used to the absence of effective competition may have a particularly strong incentive to collude rather than to compete. Indeed, liberalisation of markets and removal of other regulatory obstacles to effective competition increases competition and thereby the payoffs from successful collusion. The higher the degree of competition in a market, the greater the incentive to form a cartel and the greater the harm to the economy and consumers.

The same considerations apply to the Euro. In the past the existence of national currencies have protected some sectors against the forces of competition. The Euro effectively eliminates this obstacle to effective competition. By doing so, it promotes market integration and an effi-

¹ The study is cited in Church & Ware, *Industrial Organization – A Strategic Perspective*, p. 349.

² OECD 2000.

³ Graphite electrodes and citric acid.

cient allocation of resources. However, it may also increase the incentive for collusion.

Effective enforcement

Let me now turn to the issue of enforcement. It is clearly our job to ensure that cartels are punished with a sufficient deterrent effect. However, we should not forget the importance of also helping consumers get repair for the damage suffered. In this area, I intend to make particular efforts to make the consumers aware of their rights. Member States have also a particularly important role to play by providing for the necessary laws and procedures, allowing consumers to claim damages in courts. Here is a field of national law that may need revisiting, at least in those Member States where claims for damages for competition law violations are difficult to bring.

Fighting cartels is not an easy business to be in. Companies operating cartels are of course very much aware of the illegality of their conduct under the antitrust laws. For that reason, cartels are typically operated in secrecy and considerable efforts are devoted by the participants to avoiding detection by the authorities. Meetings are held in exotic places around the globe. Incriminating documents are destroyed or stored outside the premises of the companies. Practices are arranged so as to simulate normal market behaviour and so on.

In order to be successful a competition authority must be able to play a number of different cards. In particular, a successful fight against cartels presupposes an effective leniency programme, effective enforcement powers and sanctions, and close co-operation amongst competition authorities.

Leniency Programme

In 1996 the Commission adopted for the first time a Leniency Programme. The first experience shows that it has led to a substantial increase in the number of cartels that have been uncovered and punished.

The programme provides a strong incentive for companies to come forward and to co-operate. Companies which provide information on a secret cartel before the Commission has opened an investigation can benefit even from total immunity from fines. Moreover, companies which co-operate with the Commission in the course of a pending investigation can benefit from a substantial reduction of their fines. In the *Lysine* Decision adopted in June this year the Commission granted reductions in the fines of up to 50 % for those companies which contributed substantially to its investigation. Such substantial reductions of the fines are based on the premise that the public interest in detec-

tion and prohibition of cartels is higher than the interest in fining colluding companies.

Considering the effectiveness of leniency programmes, it would in my view be useful to explore the possibilities of adopting a Community wide programme. Indeed, to the extent that leniency programmes differ significantly, companies will naturally take advantage of the most generous programme. Moreover, such differences can cause problems for the exchange of information between competition authorities.

Fining Policy

Leniency programmes are not effective in isolation. To be effective they must be backed up by strong enforcement powers and effective sanctions.

In contrast to US law, the Commission under Community law has no power to impose criminal sanctions and it has no jurisdiction over individuals. It can only impose fines on undertakings. To have a real deterrent effect fines must be sufficiently large to eliminate the gains from the cartel and, in addition, impose a significant punishment on the individual undertaking. As we have seen, the gains from cartelisation can be very significant. Fines must therefore be substantial. Otherwise companies will gain from collusion, even if they are caught.

Initially, the fines imposed by the Commission were quite modest. In later years, however, fines have been increased significantly. The adoption at the end of 1997 of the *Guidelines on the method of setting fines* constitutes a very important development in the Commission's fining policy. The application of the principles set out in these Guidelines have helped to further strengthen the deterrent effect of fines and to make the Commission's policy more coherent and transparent.

Since the publication of the Guidelines, the Commission has imposed the highest ever fines on a single undertaking (102 million Euro on *Volkswagen* in 1998, a decision which was very recently largely confirmed by the Court of First Instance) and on a group of companies (273 million Euro on the *Trans-Atlantic Conference Agreement* ["*Taca*"]) in September 1998). Other examples of substantial fines are the 99 million Euro fine imposed in December 1999 on a cartel formed by steel tubes producers and the fine of almost 110 million Euro imposed in June of this year on producers of lysine.

These were the first cartel cases decided by the new Commission. I firmly believe that such substantial fines are justified in the case of particularly serious infringements, such as those engaged in by the companies in these cases. A tough fining policy is essential in order to deter firms from engaging in collusive behaviour, and I can assure you that I will continue this policy of dealing severely with the most serious breaches of the competition rules.

That being said, I must also stress that, in calculating the fine, we observe carefully the general principles of Community law, such as the “fairness” doctrine and the principle of proportionality. These considerations are in fact incorporated into the Guidelines and serve to individualise the fine. According to the Guidelines the fine is related to the infringement, the size of the undertaking concerned, its responsibility for the infringement and so on. Another highly relevant factor in the calculation of the amount of the fine is the application of the Leniency Notice which, as I mentioned already before, can lead to a substantial reduction of the fine imposed on companies that co-operate with the Commission.

The impact of Modernisation

I will now turn to the topic that I mentioned initially, namely the reform of Regulation 17. This reform is highly relevant to our fight against cartels. In fact, the very aim of the reform, by abolishing the present notification system, is to focus the antitrust enforcement activity of the Commission in prosecuting cartels and other serious infringements rather than in dealing with innocuous notifications.

Given the importance of co-operation between competition authorities to combat cartels, we consider it essential that the new system establishes mechanisms for close co-operation between the Commission and the national competition authorities and among the national competition authorities. What we have in mind is a network of competition authorities that work closely together in the application of Community competition law.

Within this network of competition authorities there should be free movement of evidence, allowing one authority to use as evidence information collected by another one. Indeed, competition authorities should assist each other actively in collecting the evidence required to prove an infringement.

Naturally, the free movement of evidence must be subject to certain appropriate safeguards. All authorities must be bound by a confidentiality obligation. We would also consider it appropriate to limit the use of confidential information to the purposes for which it was obtained by the transmitting authority. In addition, it would seem appropriate to exclude the use of information by the receiving authority to impose sanctions on individuals.

Very importantly, it is also envisaged to strengthen the Commission's powers of investigation. In a global economy where infringements become more and more sophisticated, it is of a paramount importance that the Commission is properly equipped with investigative powers that allow it to effectively detect infringements of the Commu-

nity competition rules. To do so, we must make the Commission's inspection powers more "biting".

Currently, these powers cover only the premises of undertakings. However, in our experience it is increasingly the case that incriminating documents are stored in private homes. In a recent case, where an undertaking chose to co-operate, it handed over documents, some of which were marked "for home archives". One document stressed that all incriminating material had to be either destroyed or taken home and that all such material should be deleted from the computer system. To ensure that the Commission remains in a position to enforce the rules effectively it is essential that it be given the power to search private homes, when it can be suspected that professional documents are kept there. Such a power exists in certain Member States and has allowed a substantial number of secret cartels to be uncovered. It goes without saying that the exercise of such a power should be subject to control by the courts.

We also envisage that the Commission should be empowered to ask questions on the subject matter of the inspection. At present, Commission inspectors can only ask for explanations concerning documents that have been discovered. The envisaged extension would be subject to the protection against self-incrimination as defined by the Community Courts.

Finally, I would like to mention that it is necessary to bring the fines for breaches of procedural rules up to date. The current level of fines, which are maximised at 5,000 Euro, have no deterrent effect what so ever. The level of fines must therefore be increased substantially. Indeed, it would seem appropriate to work with ceilings based on percentage figures rather than with absolute amounts. Such a system already exists in the ECSC Treaty.

Co-operation with other competition authorities

Even though we are experiencing success at home, we are ever more aware that international co-operation is essential to effective enforcement. International cartels ignore national borders and we find increasingly that cartels are global in scope. Industry and commerce expand on a world-wide basis, so do cartels. As no World Policeman or World Court exists, there is an absolute need for an intensive co-operation between the antitrust authorities of different countries in today's global economy.

Thus, the Commission has concluded formal bilateral co-operation arrangements with a number of jurisdictions, and co-operates on an ad hoc basis with many others. Recent cases have added new impetus to this climate of co-operation. In Vitamins, Graphite electrodes and sev-

eral other big cases the US Department of Justice and the Commission have worked together to ensure we are all going in the same direction.

In my view, however, we should not rest on our laurels. At least in the medium term the Community should seriously contemplate concluding "second generation" co-operation agreements with the US and other main trading partners. These agreements would give us the opportunity to exchange confidential information, thereby enabling us to combat the most serious violations of our respective competition rules more effectively and efficiently. This would, moreover, be in line with the 1998 OECD Recommendation on combating "hard-core" cartels, which encourages member countries to make inter-agency exchange of confidential information possible.

Merger control issues with particular interest to Sweden

Before finishing my intervention here in the home country of Volvo, I feel compelled to say a few words about merger control issues. As you all know, the Commission decided in March this year to prohibit the proposed merger between Volvo and Scania. Understandably this decision received quite a lot of attention in Sweden. Although much has happened since March, I nevertheless think that it would be useful to give you a few comments on the prohibition decision and the ensuing debate.

First, we have the impression that the debate in Sweden centred on the Commission blocking a merger that "only" – in quotation marks – concerned the Swedish truck market. This was clearly *not* the case. As can be seen from the decision, which is publicly available on our home page, we found that the merger would have led to competition problems on 15 relevant truck and bus markets in Sweden, Finland, Norway, Denmark, Ireland and in the United Kingdom.

Some commentators have also criticised the Commission for taking an unrealistically narrow approach to market definition in the truck and bus industries. In their view these markets are European, not national.

Obviously the Commission would very much like to see that all traditional barriers to trade would disappear and that these and other markets become European. However, competition policy is about to ensure consumers a sufficient choice of products at competitive prices. It must, therefore, be based on market realities.

When we studied how these markets work in practice, we found that truck suppliers were able to price discriminate between customers in the relevant countries. Most of you in this audience are familiar with competition policy. Therefore, I do not think that I need to elaborate on the significance of an ability to charge prices differing by more than

10% between neighbouring areas. I should also say that there is little or no parallel trade in these products. The most important explanation for this is probably that trucks are sold in combination with an important local component, which is the after-sales service.

In conclusion, the Volvo/Scania case was not exceptional for us. We used normal market definition standards and found strong competition concerns on a large number of markets. In those circumstances, if the parties are not able to propose clear-cut remedies to the identified concerns, a prohibition decision becomes unavoidable.

Let me now turn for a moment to the outcome following the prohibition decision. Since then both Volvo and Scania have found alternative strategic partners. Scania has teamed up with Volkswagen, which was not previously active in the production of heavy trucks and buses. This transaction strengthened the company without increasing the concentration in the market.

Just a few days ago the Commission approved Volvo's acquisition of Renault's heavy truck division (RVI) in exchange for 15% of the shares in AB Volvo. The clearance decision is subject to three divestiture commitments, namely to sell Volvo's Scania shares and Renault's interests in Irisbus (a JV with Fiat in the bus sector) and in Sisu (a truck producer in Finland). The maintenance of such links would not be healthy in a competitive market.

The speed and success with which these two latter operations were put in place shows that the Volvo/Scania merger was by no means a *sine qua non*, but that there were alternatives which ensure a more competitive market structure. I wish both companies all the best in a market that hopefully will become increasingly European over the years to come.

Conclusion

Let me now conclude: The fight against cartels is essential to the welfare of our economies and should be a priority for all enforcement authorities. Effective repression of this menace requires that we work closely together and co-ordinate our actions.

Our envisaged reform of Regulation 17 will create a new framework for co-operation both between the national competition authorities and the Commission and very importantly also between the national competition authorities. I am confident that together we will be able to fight cartels effectively and substantially increase the deterrent effect of our rules.

2 The new Swedish proposal on competition policy*

Mona Sahlin

Strengthening competition and the functioning of the market is a long-term and continuous undertaking. Competition is, however, not an end in itself. Measures to strengthen the efficiency in competition aim at giving the consumers a more powerful position on the market. It is the opinion of the Swedish Government that Swedish competition policy in the 21st century must be firmly based on a consumer perspective. In this context I would also like to mention that it is a good intention by the European Commission to seek to clarify to the consumers that competition policy works in their favour.

It is clear that the existence of an active competition policy contributes to establishing enduring economic growth, a higher level of benefit to the consumer and growing prosperity. Based on this view on the need of competition policy, The Swedish Government presented in May this year the bill *Competition for renewal and diversity*. In introducing this bill, the Government intends to establish a political platform for its further work on competition policy. One guiding principle for the general direction of competition is that it is important to remember that the Swedish market is part of the EU's internal market. Obstacles preventing access to the market must therefore be eliminated and the EC rules on competition must effectively be implemented in Sweden. It is also a main task to make available more effective tools for fighting cartels and other harmful restrictions on competition. Another guiding principle is that consumer interest in efficient competition must carry great weight when public regulations are drafted that affect the way in which the market functions.

In addition, the bill states that *a governmental committee* is to look into the possibilities to further tightening the provisions of the Swedish Competition Act in order to make supervision of competition rules more effective. Fighting cartels is of course an important subject for

* The Swedish parliament decided in November 2000 on the proposal, with just some slight differences.

the committee. I will later on in my speech focus on this issue. However the committee shall also analyse for example

- the possibility for the Swedish Competition Authority to exchange information with foreign competition authorities, in order to facilitate effective monitoring of competition;
- the possibility to limit opportunities for reciprocal board representation between competing companies, and
- the issue of breaking up certain harmful structures.

The bill also declares that supervision of the competition rules is important and therefore the Swedish Competition Authority in the budget this year has been strengthened.

I would like to continue by focusing on some aspects that are connected with the general development in Sweden of competition policy, as well as with the opening of markets.

Many measures have been taken to strengthen competition in Sweden. Since the end of the 1980s, Swedish regulations have been reformed in a large number of markets to open them up for competition. This applies, for example, to the financial market, postal and telecommunications services, the electricity market, domestic air travel, taxi transport services and some bus and railway traffic. In these areas Sweden is at the forefront of developments within the EU. Several reforms in these sectors have been made in order to make the infrastructure available to all actors on the market on non-discriminatory terms.

In so-called *new markets*, it is important that structures and regulations support the evolution of balanced and well-functioning competition. To this end, the Swedish Government recently proposed that the state should encourage the formation of a horizontal IT market structure nation-wide, to ensure competition at most of the different stages of production. In addition, new regulations have been passed for the mobile telephone market. The new rules oblige network operators with unemployed capacity in their own mobile telephone networks to make their network capacity available on non-discriminatory terms. Furthermore, changes have been made regarding the obligation of certain network operators to enter into agreements on “national roaming”.

Many recent reforms have been made in order to promote competition in other regulated sectors as well. With regard to the *postal sector*, I would like to mention a recent legislative change. By this reform operators of postal services are required to provide access to their post boxes and other installations for items conveyed by other operators, in order to enable delivery to addressees. One other example is the *air transport sector*. A new law on ground handling at airports came into

force this year. One of its effects is to enable ground-handling operators to work in an open and competitive market.

The membership of EU means that the Swedish market today is part of the internal market. Access to an enlarged supply of goods and more purchase-places have had a great impact on the conditions for competition in Sweden. It is a central task to eliminate any obstacles preventing access to the market. The possibility to enter markets is essential in order to achieve effective markets to the benefit of the consumers. In *the building and construction sector* the Swedish Government is giving high priority to the creation of an internal market within the EU. It is also important to focus on consumer price development. The Government has instructed the Swedish Competition Authority and some other Swedish authorities to analyse the factors that are causing existing price differences, especially for building material, between Sweden and the rest of Europe. In addition, in its ongoing analyses of competition, the Swedish Competition Authority should pay attention to any cases of obstacles to establishment in the area of *retail trade* that it may encounter, and to the impact that they may have on competitive pressure.

A step towards extending the application of the Community's legislation on competition to the Member States was taken in the competition bill. The bill contains a proposal to give the competent Swedish authorities the authority to apply Articles 81 and 82 of the EC Treaty, where restrictions on free competition involves trade between Member States. The aim of the proposal is to make the application of the legislation more effective and thus raise the level of protection given to free competition.

Here, I would also like to point at the fact that Sweden is an active participant in the current work based on the European Commission's White Paper on *modernising EC competition rules*. Sweden finds the main features of developments presented in the White Paper positive, since these would contribute to the creation of a more effective supervision of the competition rules in Europe. Personally I strongly believe that such a development is necessary and must be supported by the EU Member States. Here I fully endorse the view expressed by Commissioner Monti in a speech in London in June this year, namely that effective competition constitutes a public good that must be protected and that competition law and policy is of fundamental importance to the European Union, European consumers and European industry. There is thus a need to modernise the EC competition rules.

Regarding *Swedish competition rules* in specific, experience of the application of the rules has shown that special provisions ought to apply in certain sectors where there is a large proportion of small en-

terprises and that living-conditions in areas that have a low population must be taken into account.

The title of this conference, namely “Fighting cartels – why and how?” raises two questions. I would like to continue by slightly touching upon these questions. On *the first question*, namely why should we fight cartels, I have the following comments. As everybody here is fully aware, enterprises co-operating with each other can have both positive and negative effects, depending on the specific situation. In particular, co-operation between small and medium-sized enterprises can be of a positive nature since co-operation may enhance their productivity and competitiveness in relation to larger enterprises on the market. In many cases co-operation can even be desirable from an economic point of view, so long as it does not reduce competition. Co-operation between enterprises that lead to negative effects, are often called “cartels”. The types of co-operation that are found to have the most negative effect on competition are price fixing and market sharing between competing enterprises. Clearly, if companies agree on a minimum sales price or agree to divide the market between them, this reduces the effective functioning of the market and harms the interests of the consumers.

It is sometimes said that cartels no longer exist on the Swedish market, at least not to the extent that there should be a need to sharpen the Competition Act. However, co-operation between market operators always exist and there is a risk that some of these activities may have harmful effects on competition. It is important to clarify that such harmful types of co-operation can not be accepted. A report from the Swedish Competition Authority shows, in fact, that there are sectors where incentives to limit competition by concerted practises or by formal agreements may exist.

My concluding comments on the first question, namely why there is a need to fight cartels, is that there clearly is a need to fight enterprises co-operating in cartels, because of the negative impact the cartels have on consumer welfare, as well as socio-economically.

I would now like to continue by commenting on *the second question*, namely how to fight cartels. As I have already mentioned, it is clear that the existence of an active competition policy contributes to enduring economic growth, a higher level of benefit to consumers and growing prosperity. In its recent competition bill, the Government clearly declares that cartels and other restrictions on competition that harm the interest of the consumers can not be accepted and will be actively fought against. However, obtaining information on existing cartels and other activities that have harmful effect on competition and the task of successfully starting proceedings against these activities can be very difficult. It is therefore important to make sure that

the rules safeguarding competition are as efficient as possible. With a view to increasing the prospects of discovering and eliminating restrictions of free competition, the competition bill proposes that the willingness of the company to co-operate in the investigation on its own infringement shall be taken into account when the fines are set. In such cases, a reduction in the amount of the fines shall be permissible.

The extent to which it is possible to get and protect information is of great importance for effective monitoring competition. Most certainly, the incentives for enterprises to take part in secret cartels or other prohibited activities are reduced if the risk of being detected is enhanced. Thus, the governmental committee mentioned previously is considering among other things, the prospect of extending the possibility of reducing sanctions against those who inform on cartel co-operation. Another possible measure to be analysed within the committee is to give enhanced protection to the identity of persons informing on cartel co-operation. It is essential with legal security and credibility of the Competition Authority. From that perspective the committee is to look into the rules in the Swedish Competition Act. Furthermore, an analyse should be made of whether the confidentiality of documents that are received from another competition authority is given sufficient protection. Another question that is to be examined is the need for and the suitability of the Swedish Competition Authority to obtain information on behalf of another competition authority. When analysing these issues, the committee is to take into consideration the relevant aspects of EC-policy.

My answer to the second question is accordingly that it is difficult to obtain information on existing cartels and to successfully start proceedings against these activities. It is of central importance to have efficient supervision of the competition rules. As mentioned, a governmental committee has been set up to look into the possibilities of making Swedish competition rules more stringent.

I would like to end my speech by once again focusing on *the consumer*. Competition policy is based on a consumer perspective. This may sometimes conflict with the producer perspective, which focuses on the competition power of undertakings. Measures to strengthen efficiency of competition aim at giving the consumers a more powerful position on the market. Measures taken in the field of consumer policy lead to the very same effect. It is therefore vital to clarify the close connection between measures taken within these two policy areas. Using different means, both policies aim at ensuring that product markets function to the benefit of the consumer. Thus there is also an opportunity for the competent authorities in these two areas to co-operate more broadly when this is to the advantage of consumer interests. This is the motive behind the Swedish Government placing funds

at the disposal of the Swedish Competition Authority and the Swedish Consumers Agency to be used for joint projects.

Swedish competition policy in the 21st century, grounded on a consumer perspective, must contribute to the modernisation and development of society by means of efficient and open markets that let in new ideas, new enterprises and new products. Creating such an economic climate will stimulate the prospects for increased economic growth over time.

3 An inside look at a cartel at work: Common characteristics of international cartels

James M. Griffin

Introduction

I am delighted to be here today to share with you some of our experiences in the United States in the investigation and prosecution of international cartels – experiences that convince us that fighting cartels must be a priority of all competition law enforcement agencies around the world. The timing of this conference and its focus on why we should fight cartels and how to do so is extraordinarily appropriate. We are in the midst of a sea change in the way the world views hardcore cartels – or, as Joel Klein has referred to it, the dawn of a new era in anti-cartel enforcement. There is a consensus building that international cartel activity, in the form of worldwide price-fixing and volume allocation agreements, is pervasive and is victimizing businesses and consumers everywhere. Governments, businesses and consumers around the world are beginning to voice a uniform answer to our first question – Fighting Cartels – Why? And that answer is because cartel behavior is bad for consumers, bad for business and bad for efficient markets generally.¹

Growing consensus that cartels are pervasive and pernicious

This building consensus that cartels are pervasive and pernicious is reflected in the heightened activities of competition law enforcement agencies around the world; in the increased public interest in anti-cartel enforcement; and in the spreading recognition in the business community that legitimate business enterprises are often the direct victims of cartel behavior, that the damage inflicted upon them and by these cartels is enormous, and that the cost of participating in a cartel may be even greater.

¹ The focus of this presentation is on why we should fight cartels; the “how question” will be addressed by other speakers later in this conference.

Increased enforcement by competition law authorities

For many decades, there were few countries in the world truly committed to anti-cartel enforcement. Until the 1990's, a not infrequent reaction of many governments to accusations that one of their corporations was involved in an international cartel was to leap to the defense of "their" firms, accuse the investigating country of "extraterritorial" tendencies, threaten to invoke blocking statutes, and express astonishment that any country should even want to have antitrust laws, much less enforce them.

Happily, the global anti-cartel enforcement environment today is radically different. Around the world, we see new anti-cartel laws being adopted, existing laws being modified to incorporate adequate deterrent penalties, once dormant laws being aggressively enforced, innovative investigative tools being adopted and successfully employed in the fight against cartels, and the imposition of record-setting penalties being brought to bear in the fight against illegal cartels. In the past decade, a strong interest in having free markets defended by sound antitrust laws and sound antitrust enforcement has spread throughout the world. Nearly 90 countries now have antitrust laws – most of them enacted during the past five or ten years – and over 25 other countries are in the process of drafting antitrust laws of some sort. There are many differences in the details of these laws, some of them quite significant. And there are enormous disparities in the enforcement resources and priorities in all these countries. But one thing on which just about everyone agrees is that "hardcore" cartels – and by that I mean price-fixing, bid-rigging, and market and customer allocation agreements – are pernicious and should be uncovered and stopped.

That competition law authorities in fact have been aggressively uncovering and putting an end to cartels is reflected in the extraordinary penalties recently imposed against a number of cartel members. The \$500 million fine imposed against Hoffmann-La Roche for its participation in the vitamin cartel is the largest fine ever imposed in any criminal case in the United States. In addition, in connection with our prosecution of the vitamin cartel, six European executives have pleaded guilty in the United States and were sentenced to serve time in U.S. jails. These pleas and sentences mark the first time a European executive has been sentenced to jail for a violation of U.S. antitrust law. Of course, the Antitrust Division is not the only competition law enforcement agency engaged in aggressive anti-cartel enforcement. For example, recent years have seen important actions against domestic and/or international cartels by competition law authorities in Brazil, France, Germany, Israel, Mexico, Norway and Japan, to name just a few. And here in Sweden, earlier this year, the Swedish Compe-

tition Authority imposed fines totaling SEK 740 million against five companies found to have formed a cartel to fix the price of petrol in Sweden. According to Director-General Ann-Christin Nykvist this cartel cost Swedish consumers at least SEK 500 million. Additionally, for some years now, the European Commission has successfully prosecuted numerous Europe-wide cartels, often imposing very significant fines (totaling over \$100 million in some cases). Finally, in recent years, Canada has created a truly impressive record of prosecuting international cartels, including, not surprisingly, many of the same ones we have encountered. Last year, for example Canada imposed record criminal fines in its vitamin investigation.

This heightened enforcement activity and conferences such as this, cause me to be confident that there is a growing worldwide consensus that cartel behavior is harmful and intolerable. You need look no farther than around this room for evidence of a global movement towards strong anti-cartel enforcement. I don't imagine that it would have been possible a few years ago to assemble such an esteemed group to spend two days discussing anti-cartel enforcement. Yet, this is not the only international conference devoted to this issue in the past years. On September 30 and October 1, 1999 the United States sponsored an international anti-cartel enforcement workshop that drew top investigators and prosecutors from six continents and over 25 countries to Washington, D.C. to spend two days sharing experiences and learning from each other how to address the threat of international cartels. A second gathering of international anti-cartel investigators and prosecutors will be hosted by the United Kingdom's Office of Fair Trading in Brighton, England in November. There is little doubt that governments around the world, and their competition law enforcement agencies, view anti-cartel enforcement as a top priority.

Increased public interest in anti-cartel enforcement

The building interest in international cartel enforcement is not limited to the competition authorities. The message is also beginning to take hold among the public and with businesses and consumer groups who are increasingly sensitive to, and outraged by, the harm caused by cartel activity. For example, last year a business law publication with circulation in the United States and abroad issued an inaugural report on the "Top 100 Corporate Criminals of the 1990s." The report listed 100 companies that had been convicted of corporate crimes – such as environmental crimes, public corruption, bribery, tax evasion and, of course, antitrust offenses. Three of the top four corporate criminals on the list – including the number one corporate offender on the list, Hoffmann-La Roche – and six out of the top ten, were multi-national

companies which were convicted of engaging in international cartel activity. In total, twenty companies with antitrust convictions made this infamous list. And on July 10 of this year, USA Today ran a special feature story on anti-cartel enforcement, which appeared in its U.S. and international editions and was seen by millions of business people, government officials, and consumers around the world. And two books about the investigation and prosecution of the international lysine cartel were published recently. Even American television has jumped on the bandwagon. Dateline, a television news magazine program produced by and shown on the NBC television network, is planning to devote an entire segment to the investigation and prosecution of the international conspiracy in the worldwide lysine industry.

Increased awareness in the international business community

There is also a growing recognition in the business community that it is often legitimate business enterprises that feel the direct and immediate pinch inflicted by cartels. Even though it is consumers around the world who ultimately pay the increased prices caused by cartels, in the majority of the international cartels that we have prosecuted in the United States, the direct purchasers of the products illegally priced and controlled by the cartel – and, therefore, the initial victims of the cartel – were other business organizations which used the products subject to the cartel in the goods they produced. Recognizing that they too are injured by cartels, legitimate business enterprises are becoming more and more supportive of aggressive anti-cartel enforcement.

Furthermore, many corporate executives, as well as corporate counsel, have come to realize that cartels are pervasive in today's global economy and that, while the company may be victimized by them, the cost may be even greater if the company is actually a member of a cartel. This recognition has resulted in an increased emphasis in many corporations – particularly multi-national corporations – on the importance of effective competition law compliance programs. In an effort to assist corporate counsel to develop effective compliance programs, last Spring the Division made available the tape you are about to see and the accompanying materials to corporations and the private bar in the United States and abroad. The list of companies that have requested a copy of these materials reads like a combination of the Fortune 500 list and a Who's Who of multi-national firms. And virtually every major U.S. business law firm has at least one copy. These materials are being used to develop compliance programs that will impress upon corporate executives that international cartels are sophisticated in their understanding and manipulation of the markets they affect; that they em-

ploy elaborate methods to avoid detection; that they often involve senior management of huge multinational corporations; and that they do get caught, prosecuted, and punished.

The response to the public availability of these materials and the increased interests in developing effective compliance programs reflects the recognition in the business community of the growing importance of such programs. An effective competition law compliance program is important to a corporation in two respects: (1) the prevention of antitrust violations in the first instance; and (2) the early detection of violations that do occur. In today's enforcement environment, a multinational firm, and its executives, engaged in cartel activity face enormous exposure: criminal convictions in the United States; massive fines for the firm and substantial jail sentences for the individuals; proceedings by other, increasingly active antitrust enforcement agencies around the world where fines may be individually or cumulatively, as great as or greater than in the United States; private treble damage actions in the United States; damage actions in other countries; and debarment. Given this exposure, it would be difficult to overstate the value of a compliance program that prevented the violation in the first place.

There also is a spreading recognition in the business community that, if an antitrust offense does occur, another significant benefit of a compliance program is early detection of that offense. Early detection affords the organization the opportunity to apply to the Antitrust Division's Corporate Leniency Program ("Amnesty Program") and other similar programs recently adopted by, or under consideration by, a growing number of competition law authorities.² Acceptance into the Division's program results in complete freedom from criminal prosecution for the company as well as all of its officers, directors, and employees who cooperate with the Division's investigation. And acceptance into the leniency programs of other jurisdictions can result in the imposition of no penalty at all or in a significant reduction in the penalty imposed.³

² While the focus of this presentation is on "why" we should fight cartels, I do want to mention here that the Division's Amnesty Program has become one of our most important and successful tools in the United States' success in detecting and prosecuting cartel activity. Today, the Amnesty Program is the Division's most effective generator of large cases, it is the Department's most successful leniency program, and there is a growing interest in leniency programs as a powerful prosecutorial tool worldwide. My colleague, Scott Hammond, will have a lot more to say about amnesty policies as powerful prosecutorial tools tomorrow, when we turn our attention to the second question posed by this conference – how we fight cartels.

³ While there are many differences in the details of these amnesty or leniency programs, one thing they all have in common is that only the first corporation to apply for and be accepted into the program is eligible for a complete pass from the imposition of any penalty. Therefore, if a company is engaged in a hardcore cartel it would be difficult to overstate the value of a compliance program that detects that offense early and puts the

Finally, there also is a growing appreciation among international business persons who engage in cartel activity that, because governments are stepping up their efforts to combat cartels, safe harbors for international cartel activity are rapidly shrinking. This last point was dramatically made in the case of six European executives, who recently agreed to plead guilty and serve time in an U.S. prison for their participation in the vitamin conspiracy. In each of those cases, the executives agreed to travel to the United States and submit to U.S. jurisdiction even though they resided outside of the United States and we did not have an extradition treaty covering antitrust offenses with the country where they lived. Still, the defendants chose to cooperate, admit their guilt, and do their time in an U.S. jail, rather than live their lives as international fugitives in a world growing increasingly intolerant of antitrust offenders.

Growing consensus that cartels do cause enormous harm

Despite all the evidence supporting the generally accepted view that cartels are harmful to consumers and businesses, there remain a few individuals who continue to hold to the view that cartels are unlikely to exist at all and, to the extent they do exist, are harmless and inherently self-destructive. This view seems to be premised on the belief that a competitor's solicitation of an agreement on future prices is of no economic consequence and, therefore, the agreement causes little harm while in existence and dissolves quickly because of its failure to produce economic value to the parties. Today such opinions are at war with accepted legal and economic thinking not just in the United States, but increasingly around the world as well, and inconsistent with the reality of the harm inflicted by antitrust conspiracies. The recent discovery and prosecution of international cartels that have lasted for years, and even decades in some instances, belies the argument that cartels rarely exist and those that do quickly self-destruct.

The real facts also belie the assertion that no economic harm is associated with cartel activity. The enormous harm inflicted by cartels is reflected in the evidence of the cartel's effect on the price of the products subject to the conspiracy, obtained through the investigation and prosecution of numerous international cartels; the titanic penalties that have been imposed against companies found to have engaged in cartel behavior; and the huge restitution awards cartel participants have paid to their victims. Finally, the tapes we are about to see –

company in the position to be the first to successfully apply for amnesty or leniency in each of the jurisdictions where it has engaged in illegal cartel activity.

tapes which so vividly depict the utter contempt cartel members have for their customer-victims and the power of a cartel to control the market and fix the worldwide price effective the next day of the products subject to the conspiracy – should silence the remaining critics of strong anti-cartel enforcement.

The reality is that price-fixing, bid rigging, and market-allocation schemes are anything but victimless crimes. The perpetrators of these conspiracies are, quite literally, stealing money from the pockets of businesses and consumers in the United States and around the world. Let me give you just a few examples from our recent cases of the enormous harm caused by cartels.

We can start with the graphite electrode conspiracy where the producers agreed to fix prices and allocate markets around the world. Nearly every major producer of graphite electrodes throughout the world has pled guilty to participating in a five-year cartel (1992–1997) which ended only upon the execution of search warrants in the United States and “dawn raids” in Europe in June 1997. To date, six corporations have pled guilty and been sentenced to pay fines in excess of \$300 million. Three individuals have been convicted and have been sentenced to pay fines of up to \$10 million and to serve prison sentences ranging from 9 to 15 months. I can guarantee you that steel-makers in the United States and abroad did not consider that conspiracy to be a victimless crime. Before the cartel was cracked by the Division, it affected over \$1.7 billion dollars in U.S. commerce alone, which is estimated to account for between one quarter and one third of worldwide sales of graphite electrodes. Rigged price increases raised the price of graphite electrodes in the United States by *over 60 percent* during the existence of the conspiracy. The graphite electrodes cartel achieved similar collusive increases throughout the world resulting in price increases from roughly \$2,000 per metric ton to \$3,200-\$3,500 in various markets. Furthermore, in this conspiracy the value of the stocks and options held by individual conspirators soared with the passing of each agreed-upon price increase, so that some of the individual conspirators personally pocketed millions of dollars as a direct result of their criminal activity.

Tremendous harm was uncovered in connection with the lysine cartel also. Five corporations and three individuals pled guilty to participating in a three-year cartel (1992–1995) in the lysine market worldwide, which ended after the execution of search warrants in the United States. In addition, three senior executives of the Archer Daniel's Midland Company were convicted after trial. In total, the corporate defendants were sentenced to pay over \$90 million in fines, and the individual defendants have been sentenced to pay almost \$1 million in fines. Worldwide sales of lysine, a feed additive used to ensure the

proper growth of livestock, are estimated at approximately \$500 million annually, and the conspiracy is believed to have affected roughly \$650 million in lysine sales in the United States and over \$1.5 billion in worldwide sales during the duration of the conspiracy. Lysine prices increased almost 70 % in the first six months of the conspiracy alone and doubled over the entire course of the conspiracy.

The Division's investigation of an international cartel operating in the citric acid industry uncovered a complex conspiracy to carve up the world by allocation sales volumes among the members of the cartel and agreeing on what prices would be charged to customers across the globe. The conspirators also agreed on complex systems to monitor and enforce their agreements. Citric acid, a flavor additive and preservative, is found in products in nearly every home in the United States, products such as soft drinks and processed foods, as well as in detergents, pharmaceuticals and cosmetics. All major producers admitted guilt and paid fines totaling more than \$85 million for their participation in a four-year cartel in the citric acid market worldwide, which also ended after the execution of search warrants in the United States. The conspiracy is believed to have affected over \$1 billion in commerce in the United States during its duration. As a result of the conspiracy, list prices were raised by more than 30 percent to customers in the United States resulting in over one hundred million dollars in additional revenue to the members of the conspiracy.

Finally, the members of these cartels, as well as the members of the vitamin cartel, have agreed to compensate their U.S. victims alone in excess of \$1 billion for the harm inflicted upon them by these international cartels. For example, the members of the lysine cartel have agreed to pay their U.S. victims over \$50 million in compensation; the U.S. victims of the citric acid cartel will receive more than \$120 million in restitution for the damages inflicted upon them; and the participants in the vitamin cartel have agreed to re-imburse their U.S. victims more than \$1 billion for the damages inflicted by their illegal conduct.

Thus, it is clear that antitrust conspiracies do result in real harm – in enormous harm – to businesses and consumers throughout the world. It also is clear that those who engage in cartel activity do so convinced that they will reap substantial illegal gains as a result of their conspiracy. Large, sophisticated, multinational firms engaged in these conspiracies, such as the vitamin conspirators, spend millions to implement and hide their cartel, risk paying many hundreds of millions of dollars in fines, risk seeing their executives go to jail, and risk having to pay very large additional sums in civil damages to the customers they have cheated, if they are caught. They engage in such activity and take such risks because they believe that the cartel holds

the prospect of reaping enormous financial rewards for them at the expense of their customer-victims. It is little wonder then that most governments, businesses, and consumers are now in agreement that cartels are harmful and should be investigated aggressively and penalized severely.

Common characteristics of international cartels – a view from the inside

In keeping with the theme of this conference – Fighting Cartels – Why and How? – I want to share with you some of the evidence we gathered in connection with our investigation and prosecution of the lysine cartel. These materials, I think, add substantially to the growing body of evidence in support of the generally accepted answer to the question Why Fight Cartels? – Because cartel behavior (price-fixing, market allocation, and bid-rigging) is bad for consumers, bad for business, and bad for efficient markets generally. This evidence demonstrates that price fixing *is a fraud* upon consumers – that it is the equivalent of *theft* by well-dressed thieves and should be met with *unequivocal* public condemnation.

I am going to rely primarily on some audio and video tapes of actual meetings involving members of the lysine cartel, which highlight some of the common characteristics of the international cartels we have prosecuted – how cartels are initiated; how they operate; and how they attempt to conceal their activity from law enforcement.⁴ These tapes were, of course, made covertly by the FBI with the consent and assistance of a cooperating witness. They were first shown publicly at the trial of three former top executives from Archer Daniels Midland Company (“ADM”). ADM and its co-conspirators from Europe and Asia conspired to fix prices and allocate sales volumes of the food additive citric acid and the feed additive lysine. ADM pled guilty before trial and was sentenced to pay a \$100 million fine – which at the time was nearly seven times larger than the previous record fine in an antitrust case in the United States. The ADM executives were convicted at trial and were recently sentenced to pay fines of up to \$350,000 and to serve lengthy prison sentences ranging from 24 to 30 months.⁵

⁴ The material describing the tapes and the common characteristics of international cartels draws heavily, and often verbatim, from materials developed and prepared by my predecessor, Gary R. Spratling. It was Mr. Spratling, working closely with James H. Mutchnik, formerly of the Division's Chicago Field Office, Scott D. Hammond, the Division's Director of Criminal Enforcement, and myself, who first developed an International Anti-Cartel Enforcement Educational Program based on the lysine tapes. Mr. Spratling conducted numerous programs based on these materials primarily for our sister foreign law enforcement agencies.

⁵ The Court of Appeals recently affirmed the convictions of all three defendants and, at the government's request, remanded the case to the District Court to increase the prison

The lysine tapes offer a rare bird's eye view of the inner workings of an international cartel. The tapes make it clear that cartel activity is real, that it happens. They show how it happens and how successfully it can be carried out. The tapes record conspirators reporting to each other that they are "right on target" in fulfilling their agreements. They bring to life the harm inflicted by cartels, how cartels remove from the marketplace the ability for prices and sales to be determined by the free and open competition, and how collusive prices are determined in secret by competitors, who meet in hotel rooms around the world under the guise of conducting trade association meetings. They record executives from the company that publicly touts itself as the supermarket to the world (ADM) secretly telling their competitors the real truth, the company's real view of its customers – that it treats its customers as its enemies and its competitors as its friends. The tapes capture those "friends" – executives from multi-national firms – fixing prices on a global basis down to the penny and reaching agreements to carve up the world by allocating sales volumes among the cartel members.

Before I play the tapes, I want to make one point clear. While the lysine tapes are extraordinary in the sense that they give us an insider's view of the inner workings of an international cartel, the cartel itself is far from extraordinary. The objectives of the lysine cartel and the methods the conspirators used are common among the international cartels that we have detected in the last few years. At their core, international cartels have essentially the same purpose – to increase profits among the conspirators by carving up world markets – and they operate pursuant to the same methods – fixing prices, rigging bids, allocating territories and customers, and allocating sales volumes among the conspirator firms on a worldwide basis.

Now let me turn to a discussion of some of the common characteristics of international cartels and to the tapes, which so vividly depict a cartel at work.

Brazen nature of cartels

One of the characteristics we see over and over again in international cartels is the brazen nature of the conspiracies. By that, I refer to the contempt and utter disregard that the members of the cartel typically have for antitrust enforcement. I think this is a good place to begin, because we are often asked by defense counsel to treat a certain member of a cartel more favorably because he/she resides in a country

sentences imposed against Michael Andreas and Terrance Wilson in accordance with the U.S. Sentencing Commission Guidelines.

where cartel activity is treated differently than it is in the United States. The fundamental problem with this argument is that it is our experience, without exception, that the conspirators are fully aware that they are violating the law in the United States and elsewhere, and their only concern is avoiding detection. The international cartels that we have cracked have *not* involved international business persons who for cultural, linguistic or some other innocent reason find themselves mistakenly engrossed in a violation of U.S. antitrust laws. Rather, the cartels that we have prosecuted criminally have invariably involved hardcore cartel activity – price fixing, bid rigging, and market- and customer-allocation agreements. The conspirators have discussed the criminal nature of their agreements; they have discussed the need to avoid detection by antitrust enforcers in the United States and abroad; and they have gone to great lengths to cover-up their actions – such as using code names with one another, meeting in secret venues around the world, creating false “covers” – *i.e.* facially legal justifications – for their meetings, using home phone numbers to contact one another, and giving explicit instructions to destroy any evidence of the conspiracy. In one cartel, the members were reminded at every meeting – “No notes leave the room”.

Even a seasoned U.S. criminal antitrust defense lawyer and former prosecutor was shocked by the brazenness of the conduct revealed by these tapes. According to this attorney, quoted in the USA Today article mentioned above, “[p]eople literally could not believe how direct and brazen it all was.”

Involvement of senior executives

Moreover, the cartels typically involve senior executives at firms – executives who have received extensive antitrust compliance counseling, and who often have significant responsibilities in the firm's antitrust compliance programs. For example, the vitamin cartel was led by the top management at some of the world's largest corporations, including one company – F. Hoffmann-La Roche – which continued to engage in the vitamin conspiracy even as it was pleading guilty and paying a fine for its participation in the citric acid conspiracy. Just imagine – some senior executives of this multi-national firm knew about the firm's participation in international cartels in two industries. When the firm's illegal activities were uncovered in one industry, and the firm had to plead guilty and pay millions of dollars in fines, those executives could have and should have terminated the firm's cartel activities in the second (and larger) industry. Instead, those executives orchestrated false statements to enforcement authorities, took steps to further conceal the firm's illegal activities, and continued

to lead the world's other producers in a global cartel – actions which will end up costing the firm billions of dollars in fines and damages. This amazing and costly failure to heed a warning takes us back to the characteristic I just mentioned: the contempt of cartel members for antitrust enforcement and the brazenness with which they perpetrate their offenses.

The first segment on the tape demonstrates not only the brazen nature of the lysine cartel, but the utter contempt that the conspirators exhibited towards their victims and the law enforcement community. The meeting recorded on this first segment was attended by executives from the world's five dominant lysine producers. It demonstrates how the cartel members took steps to conceal their meeting, including staggering their arrival and departure times for the meeting so as not to arouse suspicion by having the entire group enter and leave the room at the same time. The members of the cartel had to be careful because the meeting coincided with the largest poultry industry trade association convention, so all of their customers were in town for the trade show. But the lysine executives laughed at the thought of being observed by their customers or by law enforcement. The videotaped recording of this meeting shows that, as the meeting begins, there are some empty seats around the table because of the staggered arrival times. The cartel members are captured on tape jokingly discussing who will fill those empty seats. One cartel member offered that one empty chair was for Tysons Foods, the largest purchaser of lysine in the United States, and that another chair was for Con Agra, also a large U.S. customer. Another cartel member had an even more provocative suggestion as to who might occupy the empty chairs.

The knock at the door heard at the very end of this tape segment, in fact, was an FBI agent, disguised as a hotel employee returning to the cooperating witness the briefcase containing a hidden audio recorder he had mistakenly left in the hotel restaurant.

In another tape played at the lysine trial, ADM's president summed up the company's attitude towards its customers in a single phrase, when he told a senior executive from his largest competitor that ADM had a corporate slogan that "penetrated the whole company": "Our competitors are our friends. Our customers are the enemy." Imagine, one of the world's largest companies, which bills itself as "the super-market to the world," having such a disdainful slogan as its internal corporate trademark.

Not only are cartel members disdainful of their customers and law enforcement authorities, some are even defiant of their own company's rules – rules adopted to protect the company and them from criminal conduct. Clearly, some executives will go to great lengths to make sure

Excerpts from transcription Atlanta, Georgia, January 18, 1995
***Cartel members show disdain for customers
and antitrust enforcement***

Mimoto: At 10.30, we will have a meeting, yeah?
Whitacre: And then, then come two more, right? Two more at that point?
Mimoto: Two more...
Whitacre: Two more...
Mimoto: after...
Whitacre: Well, we got plenty of space.
Mimoto: Yeah.
Whitacre: Yeah.
J.E. Kim: Need two more from, uh, Miwon and Se-Sewon.
Chaudret: No, no, two more from Sewon. Uh, one from Tyson, one from Con
Agra, one from..Huh... (*Group laughs*)
Yamamoto: Sales meeting, huh? (*Laughs*)
Chaudret: Well, it's easy to know the price, so everything is clear.
Mimoto: And one from the FBI (*Laughs*). (*Group laughs*)
Yamamoto: (ui) joke. (*Group laughs*)
Whitacre: And seven from the FTC.
Mimoto: Yeah. FTC. (*Laughs*)

Shinohara: Well, I also feel cautious in the way I came into this, uh, hotel. I
actually... (*Laughs*). (ui).
Chaudret: In Europe we...
Shinohara: You know and, uh, (ui)
Unknown male: (ui).
Chaudret: Even in Europe now, they're cracking down.
Unknown male: Well, uh...
Whitacre: Everyone has to be careful.
Shinohara: Oh, yes.
Whitacre: When we leave, we're better off to leave separately.

Chaudret: No, but (ui) look.
Whitacre: Wel-welcome to, to Atlanta, U.S.A.
Unknown male: Yeah.
Whitacre: I'm glad you could come here. We've been often, so often to Asia, so
often to Europe, it's, uh, good that everyone could come here at some point.

Whitacre: I think Kanji, I think Kanji's gonna pretty much lead the meeting
and obviously the topic here at the beginning would be I think more volume...
Mimoto: Yeah.
Whitacre: ...related because prices gonna start at 10.30.
(*Knocking on door*)
Mimoto: Yes? FTC? (*Laughs*)
Shinohara: Who? (*Laughs*).

that legal counsel don't find out about their criminal activity. For example, consider the impressive, yet unsuccessful, antitrust compliance efforts of the general counsel of a corporation we recently prosecuted for its participation in an international cartel.

This general counsel had instituted a comprehensive antitrust compliance program, and had made sure that the senior executives were well schooled on the antitrust laws. He had laid out specific rules to follow and adopted stiff penalties for failure to follow those rules. When a top executive at his firm arranged a meeting with his chief foreign competitor to discuss exchanging technological information, the executive, as required by the policy, notified the general counsel's office of the meeting. The general counsel (perhaps suspecting the worst) insisted on accompanying the executive to the meeting and remaining at his side throughout the meeting – never letting him out of his sight even when the executive went to the bathroom. He was certain that this way there could be no chance conversation between the company executive and his competitor, and the general counsel would be a witness to everything said. Surely no antitrust problems could arise in such a setting. And the general counsel must have taken some comfort when he, the executive, and the executive from the competitor firm greeted one another at the start of the meeting and the two executives introduced themselves to each other, exchanged business cards, and engaged in small talk about their careers and families that indicated that the two had never met each other before. Imagine how that general counsel must have felt when he learned, during the course of our investigation, that the introduction between the two executives had been completely staged for his benefit – to keep him in the dark. In fact, the two executives had been meeting, dining, socializing, playing golf, and participating together and with others in a massive worldwide price-fixing conspiracy for years. Furthermore, other employees at the company knew of this relationship and were instructed to keep the general counsel in the dark by referring to the competitor executive by a code name when he called the office and the general counsel was around.

I have spent a considerable amount of time on this point because I want to impress upon you just how determined some executives are to violate competition laws and just how vigilant we all must be in order to avoid the repetition of this shameful conduct and impose severe sanctions when it does occur.

Fear of detection by U.S. enforcers

While cartel members may show disdain for customers and law enforcement, they are not indifferent to the prospect of getting caught. They know full well that their conduct is illegal under the antitrust laws of many countries, and they have a particular fear of U.S. anti-trust authorities. For that reason, international cartels try to minimize their contacts in the United States by conducting their meetings abroad. This has been particularly true since 1995, when the lysine investigation became public. In fact, cooperating defendants in several recent cases have revealed that the cartels changed their practices and began avoiding contacts in the United States at all costs once the Division began cracking and prosecuting international cartels. However, the cartel members continue to target their agreements at U.S. business and consumers; the only thing that has changed is that they conduct nearly all of their meetings overseas. This next segment demonstrates the reluctance of foreign cartel members to conduct cartel activity in the United States for fear of detection. The conversation is between an ADM executive, who also was cooperating witness, and an executive at the Japanese firm, Ajinomoto. They are discussing the location for the next cartel meeting. The Ajinomoto executive is clearly reluctant to have a cartel meeting in Hawaii, but ultimately agrees to consider it because Hawaii is a convenient location for everyone and because of the lure of the golf courses located near the meeting site.

Using trade associations as cover

The Ajinomoto executive's reluctance was well founded, as the meeting was video taped by the FBI and became a critical piece of evidence in the prosecution of the lysine conspirators. A tape segment from that meeting vividly demonstrates another characteristic of international cartels, which was referred to in the previous segment, *i.e.*, their frequent use of trade associations as a means of providing "cover" for their illegal activities. In order to avoid arousing suspicion about the meetings they attended, the lysine conspirators actually created an amino acid working group or subcommittee of the European feed Additives Association, a legitimate trade group. The sole purpose of the new subcommittee was to provide a false, but facially legitimate explanation as to why they were meeting.

As I mentioned, the lysine cartel members did end up meeting in Hawaii, and the FBI was there to video tape the meeting. At that meeting, the executives discussed how they would use the trade association as the "perfect cover" for their price-fixing meetings. They also talked about such details as preparing false agendas and false minutes

Complete transcription Telephone call from ADM, July 13, 1993
***Foreign co-conspirator expresses reluctance to meet
in the United States***

Whitacre: And regarding our, and regarding our next meeting...

Mimoto: Yeah.

Whitacre: I think that, now our next meeting, since you guys hosted the Vancouver meeting, I think ADM should host the next meeting. Don't you think?

Mimoto: Yeah. That's fine.

Whitacre: And maybe we host it in, ui, Maui.

Mimoto: Maui?

Whitacre: The lysine, you know, have the lysine meeting like we had last time in Vancouver.

Mimoto: Yeah.

Whitacre: The group lysine meeting, to have it in Maui, Hawaii.

Mimoto: Maui, Hawaii, is, uh, still the United States.

Whitacre: Yeah, but you think in a, a hotel in...

Mimoto: (ui-talking at the same time)

Whitacre: Hawaii next to an eighteen hole golf course?

Mimoto: (*Laughs*). No, uh, if your company judges no problem, maybe I will consult with, ah, our legal department.

Whitacre: Well you know we met Kyowa, we met Kyowa in Hawaii, Maui, about a year ago, I think.

Mimoto: I know, one-to-one is alright, but this kind of, well maybe we can call it, ah, association for the establishment of our association.

Whitacre: Yeah, that's right. I could be a formal Association meeting to, to starting of our association...

Mimoto: Hum.

Whitacre: and also would be a good distance for you and us both together.

Mimoto: (ui). That's right.

Whitacre: Only about half way for each of us.

Mimoto: Yeah, yeah, that's right. And be on the golf course, I think.

Whitacre: Yeah.

Mimoto: Uh, no big problem.

Whitacre: And I think you country owns...

Mimoto: (ui).

Whitacre: Hawaii anyway. So...

Mimoto: Yeah, that's right. So, uh, well, anyway, I will get that advice from our legal department.

Whitacre: Yeah, okay, okay, and we got, we got...

Mimoto: But, uh...

Whitacre: time on that. That meeting wasn't gonna happen till one, we figured out the mechanics of the association..

Mimoto: Hmm.

Whitacre: first, and two, to make sure the prices really go up.

Excerpts from transcription Maui, Hawaii, March 10, 1994
***Cartel members use trade association as a cover
 for conspiracy meetings***

Chaudret: It has to be sent. Each, each Working Party minutes has to be sent.

Wilson: (ui) if we need to be (ui)

Mimoto: So uh, if we use this, uh, plenary meeting as a cover, then our name is on the, uh, minutes of the meeting.

Chaudret: As it is here.

Mimoto: Yes.

Wilson: (ui)

Mimoto: Many commercial people and some technical people.

Wilson: Right.

Mimoto: And we have to discuss the real matter.

Wilson: Yeah. Absolutely.

Mimoto: On maybe the next day we will have a price talk?

Wilson: That's right.

Chaudret: At least we meet, there is, we meet officially. We set, we agree. And then we recognize that we met officially. That's it or to discuss these, uh, specific, uh, topics.

Mimoto: Not entirely.

Chaudret: Otherwise, if you have an inquiry of the, I don't know the, uh, EC (ui)..

(Several talk at once - ui)

Chaudret: how to justify in, uh, in Brussels?

Wilson: No (ui) first. No, it's not fair.

Chaudret: Or Paris or, we can meet anywhere, it can be..

Whitacre: It'd be unusual.

Wilson: It'd be unusual, but I..

(Laughter)

Whitacre: I think the direction of the Association is good. I'm really concerned about the names, how they'd be on the...

Mimoto: Yeah.

Whitacre: Agenda.

Mimoto: Yeah.

Wilson: What you're doing, uh, early terms is you're setting up a brand new association. That's what you are doing. So it's a perfect cover. Now, 2 years down the road or a y-year down the road or 9 months down the road, you'll admit you don't want it, but that kinda cover. But right now, it's a perfect cover. It's perfect.

Yamamoto: Yes.

of the meeting to send to the parent association based in Brussels. In addition, they discussed their shared concern that the EU authorities not discover their activities.

Similarly, the citric acid cartel used a legitimate industry trade association to act as a cover for the unlawful meeting of the cartel. The cartel's so-called "masters," *i.e.*, the senior decision-makers for the cartel members, held a series of secret, conspiratorial, "unofficial" meetings in conjunction with the official meetings of ECAMA, a legitimate industry trade association based in Brussels. At these unofficial meetings, the cartel members agreed to fix the prices of citric acid and set market share quotas worldwide. A former ADM executive testified that the official ECAMA meetings provided a "combination of cover and convenience" for the citric acid cartel. As he explained it, ECAMA provided "cover" because it gave the citric acid conspirators "good cause" to be together at the particular location for the official meetings – which were held in Belgium, Austria, Israel, Ireland, England and Switzerland. Since the cartel members were all attending those meetings anyway, it was convenient to meet secretly, in an "unofficial capacity" for illegal purposes, during the time period set aside for the industry association gathering.

Fixing prices globally

Another common characteristic of an international cartel is its power to control prices on a worldwide basis effective almost immediately. Prosecutors got an unprecedented view of the incredible power of an international cartel to manipulate global pricing in the lysine videotapes. Executives from around the world gathered in a hotel room and agreed on the delivered price, to the penny per pound, for lysine sold in the United States, and to the equivalent currency and weight measures in other countries throughout the world, all effective the very next day. Our experience with the vitamin, citric acid, and graphite electrode cartels, to name a few, shows that such pricing power is typical of international cartels and that they similarly victimize consumers around the globe.

The next two tape segments demonstrate international cartel activity at its core – price fixing and market allocation on a global basis. In the first segment the lysine cartel members agree upon the prices to be set for the United States and Canada.

Excerpts from transcription Maui, Hawaii, March 10, 1994
Cartel members fix prices on a global basis

Whitacre: \$1.20 a pound.
Vetter: Minimum.
Unknown male: (ui)
Yur: Absolute minimum.
Mimoto: Delivered truckload price.
Yamamoto: (ui)
Mimoto: But anyway.
Yamamoto: Yes.
Mimoto: That's it: Fo-for Canada, 1.45.
Whitacre: I gave you the price what it is today, this is what we ought to push for. I mean it's 3.15, 3.20 right now.
Mimoto: Uhm.
Whitacre: I think to go to 3.55 is a little heavy right now...
Mimoto: From now.
Whitacre: in my opinion.
Mimoto: From now.
Whitacre: Right. From tomorrow, from tomorrow.
Mimoto: Oh.
Whitacre: It's already nighttime in Canada.
Yamamoto: (Laughs)
Chaudret: Uh, not on the West Coast.

Whitacre: Well instead of pitpointin a lot of examples, why don't we?... Well like I told you, we made some mistakes, too, in U.S.A. 3, uh-uh, and we took care of it. The guy that was doin' that. U.S.A., I think we ought to go back, you know our target was a \$1.20. We ought to get it back on target.
Wilson: How far below are ya?
Whitacre: At least ten cents.
Wilson: Then, I wouldn't go to a \$1.20.
Vetter: No, uh, uh, I think that's a little bit, uh, you were mentioning for Europe, I think.
Whitacre: Well this is a \$1.16 right there in Canada.
Vetter: We should have Canda about, eh..
Whitacre: (ui)
Vetter: 1.15, 1.16. At the same price in the States and Canada. And going back to 1.20, 10 cents up.
Whitacre: Delivered price, full truckload.
Vetter: 1.16.
Whitacre: 1.16, you agree?
Wilson: A \$1.16
Vetter: A \$1.16...
Mimoto: A \$1.16 (laughs) huh?

Whitacre: Effective tomorrow?
Mimoto: minimum.

The lysine cartel used the U.S. price as the primary benchmark for the world price, and then specific prices were fixed on a country-by-country basis at the meetings. The cartel became very efficient in fixing prices, and it did not take them long to agree on price increases. Remember that these cartel members were not discussing general price levels or a range of prices; rather the lysine cartel fixed the price to a specific penny per pound in the United States or, in the case of the Canadian market, to the penny per kilogram. All prices to be effective the very next day. Later in the meeting, they did the same thing for other countries in local currency and weight measurements.

Worldwide volume-allocation agreements

The members of most international cartels show a sophisticated understanding and manipulation of the markets they cartelize. They recognize that price-fixing schemes are more effective if the cartel also allocates sales volume among the firms. For example, the lysine, vitamin, graphite electrode, and citric acid cartels prosecuted by the Division all utilized volume-allocation agreements in conjunction with their price-fixing agreements. Cartel members typically meet late in the year to determine how much each producer has sold during the preceding year and to calculate the total market size. Next, the cartel members estimate the market growth for the upcoming year and allocate that growth among themselves. The volume-allocation agreement then becomes the basis for (1) an annual “budget” for the cartel, (2) a reporting and auditing function, and (3) a compensation scheme – three more common characteristics of international cartels.

In the next tape segment, the lysine cartel members divide up the world's lysine market. The meeting was attended by two high-ranking ADM executives. Representing all of the Japanese and Korean cartel members were two senior executives from Ajinomoto. Earlier in the meeting, the cartel members had determined how much each producer had sold in the prior year. Then, they used those figures to determine the total market size. Next, they estimated what they believed the sales growth would be in the coming year. All of these figures were written down on the easel board by one of the cartel members. They then decide how they are going to allocate that sales growth in the market is estimated to be 14,000 tons, and the question posed by the senior ADM executive is: how do we divide this market growth?

Retaliation threats – policing the agreement

As is typical of international cartels, the lysine cartel members agreed on how they would share the market. As is also typical, they adopted a number of ways to police and enforce the agreement they had reached.

Excerpts from transcription Irvine, California, October 25, 1993
Cartel members allocate worldwide sales volumes

Whitacre: Fourteen thousand tons.
Andreas: So we got fourteen thousand tons of growth.
Yamada: Yeah.
Andreas: In one year.
Yamada: Yeah.
Andreas: So the question is who gets that growth.
Yamada: Yeah.
Andreas: That's for, it doesn't matter whether we believe each other or not, that that's how much growth there's gonna be. If it's if the market's two thirty, it's gonna be thirteen thousand. If the market's two fifty, it's gonna be fourteen thousand. So it's, so it's one thousand tons difference.
Whitacre: (ui).
Andreas: Right?
Whitacre: It's peanuts if it's two hundred and forty-five thousand ton.
Andreas: Yeah. So now KYOWA would like to have...
Ikeda: Well uh...
Andreas: How much of that growth would they like to have...compared to this year?
Ikeda: Uh, excuse me uh, o, only the figure they can agree will be...
Yamada: Forty-six.
Andreas: Forty-six.
Ikeda: Forty-six.
Whitacre: For ninety-four?
Ikeda: Yeah. Even ninety-four or ninety, even ninety-five.
Andreas: So...
Whitacre: Well that's two thousand tons out of that, that's...
Andreas: So they want...
Whitacre: two.
Andreas: two.
Whitacre: They want two.
Andreas: KYOWA wants two.
Ikeda: Um (*using a marker*)
Whitacre: MIWON stay the same?
Ikeda: Uh, they say thirty-six thousand.
Whitacre: So plus two (*marker being used*).
Andreas: MIWON wants two.
Whitacre: CSA they told us in Paris, which I...
Ikeda: CSA we gotta...
Whitacre: I know their plant's not even that big.
Ikeda: I think we gotta disregard because uh they say anything...but uh...
Andreas: Let's give them two.
Ikeda: (*Laughs*) okay.
Andreas: I'll give 'em two and we won't believe 'em when they tell us.

Ikeda: Plus uh what uh okay, newcomers get better uh better treatment
Andreas: Well, why don't we give them, let's give 'em two.
Ikeda: Two, okay.
Andreas: They can, tell 'em they can't have any more than the other big guys here.

It is common for cartel members to try to keep their co-conspirators in line by retaliating through temporary price cuts or increases in sales volumes to take business away from or financially harm a cheating co-conspirator. Sometimes, the mere threat of such retaliation is enough to keep would-be cheaters in line. In the next tape segment, one of the ADM conspirators poses such a threat in order to get his co-conspirators to agree to the particular volume-allocation scheme he had just proposed.

The lysine conspirators understood the threat and quickly agreed to ADM's proposed market allocation.

Audits and the use of scoresheets

Another method of policing the volume-allocation conspiracy, adopted by most international cartels is the use of a "scoresheet" to monitor compliance with and enforce their volume-allocation agreement. Each firm reports its monthly sales to a co-conspirator in one of the cartel firms – the "auditor." The auditor then prepares and distributes an elaborate spread sheet or scoresheet showing each firm's monthly sales, year-to-date sales, and annual "budget" or allocated volume. This information may be reported on a worldwide, regional, and/or country-by-country basis and is used to monitor the progress of the volume-allocation scheme. Using the information provided on the scoresheet, each company will adjust its sales if its volume or resulting market share is out of line.

Compensation schemes

Another common feature of international cartels is the use of a compensation scheme to discourage cheating. The compensation scheme used by the lysine cartel is typical and worked as follows. Any firm that had sold more than its allocated or budgeted share of the market at the end of the calendar year would compensate the firm or firms that were under budget by purchasing that quantity of lysine from any under-budget firms. This compensation agreement reduced the incentive to cheat on the sales volume-allocation agreement by selling additional product, which, of course, also reduced the incentive to cheat on the price-fixing agreement by lowering the price on the volume allocated to each conspirator firm.

In the next segment, one of the lysine conspirators from ADM explains the importance of a compensation scheme to the cartel and gives the other cartel members a motivational speech that has to be one of the best pieces of evidence ever obtained in a cartel investigation.

Transcription

Maui, Hawaii, March 10, 1994

Co-conspirator explains how end-of-year compensation scheme eliminates incentive to cheat on cartel

Whitacre: Yeah.

Wilson: Sir, I-I, now, that's gonna be your business. Again, I wanna go back and I wanna say somethin' very simple. I we're gonna trust, okay, and if I'm assured that I'm gonna get 67,000 tons by the year's end, we're gonna sell it at the prices we agreed to and I frankly don't care what you sell it for. But as long as I know I'm gonna get my 67,000 tons, 'cause I'll sell it at full market price. If you choose not to do that...

Whitacre: It's your loss.

Wilson: you could explain it to your management. I don't have to explain it. But I do have to explain it or Mark has to explain it to our management. The only thing we need to talk here because we are gonna get manipulated by these Goddamn buyers, they're sh, they can be smarter than us if we let them be smarter.

Mimoto: (Laughs).

Wilson: Okay?

Mimoto: (ui).

Wilson: They are not your friend. They are not my friend. And we gotta have 'em. Thank God we gotta have 'em, but they are not my friends. You're my friend. I wanna be closer to you than I am to any customer. 'Cause you can make us, I can make money, I can't make money. At least in this kind of market. And all I wanna is ta tell you again is lets-lets put the prices on the board. Let's all agree that's what we're gonna do and then walk out of here and do it. And if you don't do it, you're gonna win some, you're gonna lose some.

Whitacre: But we balance it out at the end of the year.

Wilson: And at the end of the year, you're gonna be where we talked that we're gonna be. As long as the market's there.

Whitacre: If you're under, we're gonna buy from you.

Mimoto: Well, oh, I'll will be happy, yeah. (Laughs).

(Laughter)

Wilson: So, that is always...

Whitacre: We're buyin' from you already.

Wilson: That's always how it comes down.

Mimoto: (ui)

Whitacre: Central Soya

Wilson: They're gonna tell ya, "I could buy it cheaper". They'll, they'll outright lie to you. That's their job. You can believe 'em if you want to. If you trust us, and that is the big thing, if you trust us, you know we aren't doin' it.

Whitacre: Because we're gonna be givin' our volumes to each other.

Wilson: And they're gonna be givin' the order to somebody. Somebody's gonna get the order and if they get too much and they don't stop it, then the you gotta look 'em right in the eye and say, "Mr. Whitacre, you're 2,000 tons ahead of where you're supposed to be. What the hell are you gonna do about it?" And if he's a gentleman and a man who lives up to his word, he's gonna cut. That's how it works. Has to. But it, in the meantime, you get all this stuff from cus-

tomers, your sales people are complainin' and, but God damn it that's our job.

Whitacre: I will say this...

Wilson: As man-as managers, that is our job.

Budget meetings

Cartels nearly always have budget meetings. Like division managers getting together to work on a budget for a corporation, here senior executives of would-be competitors meet to work on a budget for the cartel. Budget meetings typically occur among several levels of executives at the firms participating in the cartel; their frequency depends on the level of executives involved. The purposes of the meetings are to resolve allegations of cheating (another policing mechanism); fix prices for the next quarter; and to effectuate the volume-allocation agreement – first, by agreeing on the volume each of the cartel members will sell, and then periodically comparing actual sales to agreed upon quotas. Cartel members often use the term “over budget” and “under budget” in comparing sales and allocations. Sales are reported by member firms on a worldwide, regional, and/or country-by-country basis. In our experience, the executives become very proficient at exchanging numbers, making adjustments, and, when necessary, arranging for “compensation.”

The last tape segment gives a ringside seat at one of the quarterly lysine cartel budget meetings where the members reported their sales on a regional and worldwide basis. The conspirators report the monthly and year-end metric tons of lysine sold by each conspirator firm.

Like so many of the cartels we have prosecuted in the past few years, the lysine conspirators were “right on target”. Of course, the targets of this cartel were its customer-victims throughout the world.

Another “textbook” example – the vitamin cartel

Implementing a volume allocation agreement to restrict output and to maximize the incentives of the cartel members to sell at or above the agreed-upon price was not unique to the lysine or citric acid cartels. The same practice was used in the vitamin cartel where agreements were reached on how much product each company would produce, which customers they would sell it to, and at what price they would sell it. As with lysine, the vitamin conspiracy was not limited merely to a few products, customers or currencies; rather, the cartel members discussed and agreed-upon prices and sales volumes for numerous products impacting billions of dollars worth of vitamins sold throughout the world.

Excerpts from transcription Atlanta, Georgia, January 18, 1995
Cartel members report end-of-year sales figures and find that sales volumes were "right on target"

Mimoto: So, uh, the table which I delivered is, uh-uh, results up to the end of November and this is based on, uh, the reporting of each company and, uh, if you are ready to, uh, report for December, uh, please do it then we can begin with for the total for '94. Uh, Mr. Kim, uh, did you bring the figures for December?

J.E. Kim: Yes, December...

Mimoto: Yeah.

J.E. Kim: we export, uh, 1,421.

Mimoto: 1,421.

J.E. Kim: 21, yeah, we export.

Mimoto: Total?

J.E. Kim: Total, yes.

Mimoto: And region wise?

J.E. Kim: What?

Whitacre: Region wise, U.S.

J.E. Kim: Region, regionally?

Mimoto: Uhm.

J.E. Kim: To Europe.

Mimoto: Europe.

J.E. Kim: Uhm, four hundred and ninety-eight. And Asia...

Mimoto: Um hum.

J.E. Kim: 923.

Mimoto: Um hum.

Mimoto: Can I tell you our figures?

J.E. Kim: Yeah.

Mimoto: For December, North America, 1,500. Just...

Whitacre: It's too much.

Yamamoto: uh, round number.

Whitacre: Too much.

Chaudret: But, it's...only two tons more than November.

Mimoto: And Lat-Latin America, uh, very small.

Chaudret: Yeah.

Mimoto: Very small. 156.

Whitacre: Way too much!

Yamamoto: Way too much! Way too much!

Whitacre: And total for us for the year, calendar year is 68,000; 68,334.

Mimoto: Um hum.

Whitacre: 68,334 and our target was 67,000 plus alpha.

Yamamoto: Finally, you catch up, huh? To the total number.

Whitacre: 68,334.

Yamamoto: Okay.

Whitacre: Almost on target.

Yamamoto: Oh, yeah, almost. Same as us, huh. Our number in the United..

Whitacre: So.

Yamamoto: States uh thirteen hundred, eighteen one three one eight. And Central South America, one two three o. Europe...

Chaudret: One three o.

Yamamoto: One two three o. Europe, uh, eight four three. Asia, ten forty. Ten forty is your tax claim, yeah?

Whitacre: Ten forty.

Whitacre: Ten forty form.

Chaudret: You... remember that, huh?

Yamamoto: Yeah, uh, total is, uh, four four three one. 4,431. Total, how much, forty-seven five five four.

Unknown male: Would be seven...

Unknown male: Four.

Yamamoto: Forty-seven five hundred fifty-four.

Mimoto: Five five four.

Yamamoto: Five five four.

Whitacre: Right on target.

Yamamoto: Right on target.

In order to carry out the vitamin conspiracy, the cartel members stopped competing and, instead, worked together as if they were sales divisions of the same company – a company that one of the conspirators referred to hypothetically as “Vitamins, Inc.” Once a year, for nearly 10 years, the global marketing heads, the product managers, and the regional managers from each conspiring company would get together for two-to-three-day summit meetings. At such meetings, the cartel members would discuss and agree on price increases and sales volumes on a global basis for the upcoming year. The cartel also held annual meetings where the members’ global marketing heads and division presidents met and reviewed the results of the preceding year, taking stock, in particular, of the profitability of the continuing conspiracy to each cartel member. In addition to these meetings, lower-level executives, who were charged with the implementation of the global cartel, met with their counterparts around the world on at least a quarterly basis to ensure that the cartel ran smoothly. And it did. Documents prepared by members of the cartel for various meetings reveal that the cartel, over the course of a full decade, was nearly always successful in coordinating and implementing the agreed-upon or “budgeted” price increases for the many products controlled by the cartel and in adhering to the precisely allocated market shares around the world.

Conclusion

Over the past decade, we have experienced a growing, virtual world-wide recognition that free markets, where prices and output are determined by free and open competition and consumer preferences, result in the production of the highest quality goods at the lowest prices, generate the most significant level of innovation, and produce the greatest benefit to consumers. Cartel behavior attacks the very heart of a “free economy” – the determination of price and output through competition and consumer preferences – diverts resources from their optimal use, and transfers wealth to those engaged in illegal activity. Yet, even though there has come to be a general consensus that cartels are bad for free market economies, until recently only a few countries have done very much about them. However, I believe that the brazenness of the lysine conspiracy (and others) as seen on these tapes and the enormity of the cartels recently prosecuted by the Division and others, particularly the vitamin conspiracy – with its global scope, long and successful life, billions of dollars of commerce involved worldwide, and obvious impact on individual and business consumers alike, and now very stiff penalties – have had a catalytic effect on public opinion in many countries. The public exposure of these conspiracies, how they operate, and the harm they cause has brought home to many people (governments, the media, and the business community alike) the seriousness of the threat that international cartels pose to efficient market economies throughout the world. People are now less likely to view cartels as aberrations that can be left to self-destruct or to more-or-less routine, technical judicial or administrative proceedings, which have little or no deterrent effect.

Hopefully, this tape and the accompanying materials will add to the already impressive mountain of evidence in support of the conclusion that cartels are truly a scourge on the international marketplace that must be outlawed and penalized severely. In today's environment, vigorous, international antitrust enforcement, and broad based support for such enforcement, is increasingly important to businesses and consumers throughout the world.

4 “Collusion” under Article 81 and the Merger Regulation

*Damien J. Neven**

Abstract

This paper first reviews the analysis of collusion performed in the EU under Article 81 and under the Merger Regulation, respectively. We observe that firm evidence is required to find a violation of Article 81 but that collective dominance, i.e. the prospect that collusion might arise as the result of a merger, can be established with rather loose evidence. We argue that this attitude cannot be wholly attributed to the inherent difficulty in providing sound evidence in *ex ante* control but rather that Article 81 and the Merger Regulation seem to have different presumptions with respect to the likelihood of collusion. Contrary to what happens under Article 81, the analysis undertaken under the Merger Regulation seems to presume that collusion is “easy”. This presumption is expressed for instance in *Gencor/Lonrho* where the Court found that in markets with particular circumstance firms will recognise their interdependence and will be strongly encouraged to co-ordinate prices.

We review what the economic literature, and in particular the literature in experimental economics, has to say on the matter. We find few reasons to think that collusion is “easy” to undertake without extensive “concertation” between firms. This evidence suggests that the analysis of collusion *ex ante* should be seriously tightened. In our view, the Commission should focus on the existence of effective vehicles of concertation between firms and pay only little attention to circumstances that are meant to favour co-ordination. Such an approach would also be more consistent with current US policy. In addition, we argue that the prospect for collusion should be more systematically considered in notified agreements between firms which fall under Article 81 rather than the Merger Regulation.

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Introduction

The prospect that firms might form cartels or “collude” is a prime concern for competition agencies. Typically, the legal instruments available to competition agencies allow them to address collusion *ex post*. But authorities can also seek to prevent collusion *ex ante* when changes in industry configurations are subject to regulatory approval.

This paper first reviews the analysis of collusion performed in the EU respectively under Article 81 and under the Merger Regulation. We observe that firm evidence is required to find a violation of Article 81 but that collective dominance, i.e. the prospect that collusion might arise as the result of a merger, can be established with rather loose evidence. We argue that this attitude cannot be wholly attributed to the inherent difficulty in providing sound evidence in *ex ante* control, but rather that Article 81 and the merger regulation seem to have different presumptions with respect to the likelihood of collusion. Contrary to what happens under Article 81, the analysis undertaken under the Merger Regulation seems to presume that collusion is “easy”, i.e. will arise naturally from particular market circumstances.

We review what the economic literature, and in particular the literature in experimental economics, has to say on the matter. We find few reasons to think that collusion is “easy” to undertake without extensive “concertation” between firms. This evidence certainly suggests that the analysis of collusion *ex ante*, in particular in the context of the Merger Regulation, should be seriously tightened. In our view, the Commission should focus on the existence of effective vehicles of “concertation” between firms and pay only little attention to circumstances that are meant to favour co-ordination. Such an approach would also be more consistent with current US policy.

At the outset, some discussion of terminology is useful to avoid possible misunderstandings; economists and lawyers tend to use different concepts in their analysis of “collusion” and sometimes even attach different meanings to the same word. In terms of economic analysis, collusion and cartels are associated with the collective exercise of market power. This is a situation where firms profitably raise prices beyond what would be optimal according to *short term*, independent profit maximisation by each firm and reach a “collusive” outcome (possibly the outcome that would be chosen by a monopolist). The main mechanisms that has been highlighted in the economic literature to support such an outcome stems from repeated market interactions (super-games): firms might resist taking advantage of their competitors in the short term because such a strategy might trigger a period of intense competition during which the benefits of the collusive outcome will be lost.

Following the wording of Article 81 and its case law, lawyers tend to emphasise the presence of “concertation” (which is a necessary condition for finding a violation under this statute). “Concertation” is an EU neologism¹ which is meant to capture communication with the aim of reaching an agreement. Very often, collusion is understood in legal discussions as referring to a situation where firms undertake some concertation and collectively exercise market power (see Whish, 2000).

From the perspective of economists, the presence of concertation is however unimportant. To the extent that formal or informal agreements or concertation between firms to raise price are unlawful, they cannot be enforced by the legal system. Hence, collusive outcomes *can only be supported by self-interest* of the participants and this is what economist focus on. What they understand by collusion is thus broader than what lawyers often mean (see table 1). It includes cartels as well as “tacit collusion” a polar case where firms undertake no concertation and support a collusive outcome solely through market interactions². The economist's focus on whether the collective exercise of market power can be supported by self-interest does not imply however that the role of concertation is neglected in their analysis. As discussed below, concertation might indeed help in supporting collusive outcomes.

Let us also note that the concept of parallel conduct or conscious parallelism is an additional source of confusion. In the US, it is used to describe what economists refer to as “tacit collusion”. In Europe, the Court of Justice (for instance in the *Wood Pulp* decision) has used the term parallel behaviour in a more positive sense merely to describe firms' behaviour – so that the term is ill defined at least in Europe.

In what follows, we will use the term collusion in the economists' understanding.

¹ For once, a transplant from French.

² To avoid confusion across fields, Whish (2000) recommends the use of “co-ordination” to refer to what economist understand as tacit collusion.

Table 1. Some terminology

Collective exercise of market power solely through market interactions	Collective exercise of market power with concertation
Collusion (economists) Prohibition under the Merger Regulation	
Tacit collusion (economists)	Prohibition under Article 81
Parallel behaviour (US lawyers) Co-ordination? (Whish, 2000)	Collusion (EU lawyers)

Collusion under Article 81 and the Merger Regulation

We first describe how collusion is treated under Article 81 and the Merger Regulation before turning to an explicit comparison.

(i) *Regulation ex post under Article 81(1)*

The control of collusion and cartels is undertaken *ex post* under the provision of Article 81(1), which prohibits agreements and concerted practices that restrict competition. In the context of Article 81, the existence of an agreement or a concerted practice requires some proof of concertation and the European Court of Justice has made it clear that concertation requires more than market interactions (for instance it requires some form of intentional communication between firms); as a consequence, the Court has also effectively ruled that tacit collusion is *not* unlawful (see Neven et al., 1998). In addition, the European Court of Justice has recognised that evidence on firm behaviour (using market data, pricing changes and so forth) is inherently difficult to interpret. This is particular clear in the *Wood Pulp* decision where the Court indicated that “parallel conduct cannot be regarded as furnishing proof of concertation unless concertation constitutes the only plausible explanation for such conduct”. In practice, the test may not be as demanding but the Commission should still show that the data cannot be explained by the “normal conditions of competition”. Given that market evidence can almost always be interpreted in several ways and often suffers at least one competitive interpretation (see for instance, Philips (1995), Kühn (2000), Neven et al. (1998)), it appears that the Court effectively requires some *material* proof of concertation (proof

that firms met, that they exchanged information,...). Hence, it appears that the evidence, which is necessary for a prohibition under Article 81, is demanding.

(ii) *Regulation ex ante under the Merger Regulation*

The second regulatory instrument in which collusion features is the merger regulation. In this instance, collusion is regulated *ex ante*. The concern is that a merger might create conditions, which will enhance the prospect for collusion between firms. This concern has been recognised under the concept of “collective dominance”³. It is taken seriously to the extent that a significant risk of collective dominance is a sufficient ground for a prohibition (as in *Airtours/First Choice*).

The analysis of collective dominance performed by the Commission and the Court suggests that it could be associated with “tacit” coordination (see for instance, Competition Policy Newsletter, June 1999). The evidence that the Commission is putting forward to support a finding of collective dominance also appears to be surprisingly loose. In general, the Commission reviews a number of factors that are meant to favour collusion and examines whether these factors are affected by the merger. These factors include the degree of product differentiation, the similarity in cost conditions, the transparency of the market and the symmetry in market positions. This approach is loose in at least two respects. First, the effect of factors considered by the Commission is sometimes ambiguous. For instance, product differentiation might sometimes worsen the incentive to collude. The effect of transparency is also unclear. There are at least three effects at work:

(i) transparency *ex post* will improve firms' ability to monitor each other and hence should improve the prospect for collusion;

(ii) transparency *ex ante* will reduce consumers' transaction costs and increase the cross-price elasticities, and this might reduce the scope for collusion and

(iii) transparency *ex ante* might improve firms' ability to focus on a particular outcome, which again helps collusion.

Second and more importantly, there is no simple way of measuring the importance of these factors and assessing them against a meaningful benchmark. For instance, to decide that product differentiation in a

³ In the Commission's policy writings (see for instance the Competition policy newsletter of June 1999 or the Commission's submission to the OECD roundtable of May 1998), collective dominance is clearly associated with potential risks of collusion. The Commission's decision in *Airtours/First Choice* is unfortunately less clear cut. For instance, the Commission suggested (para 55) that collective dominance does not require the existence of an incentive mechanism such that firms prefer not to not compete strongly in the short term. Such a statement seems hard to reconcile with the economic theory of collusion in repeated games. Admittedly, this author, who acted as an advisor to *Airtours*, may have a biased perspective. However, see for instance Whish (2000) or NERA (1999).

particular industry is important and that it reduces the scope for collusion or that costs are so similar that collusion is likely or that the merger makes the industry so much more symmetric that the prospects for “tacit” collusion is enhanced involves some rather arbitrary judgements. In an industry where different factors point in different directions (for instance, a symmetric industry with little product differentiation), there is no benchmark to assess their relative importance and the net effect is again a matter of judgement.

Overall, the Commission thus appeals to general factors; the effects of these factors are sometimes not robust in terms of economic principles and they are not calibrated; the evaluation of whether these factors actually matter (in terms of economic and statistical significance) is sometimes not even supported by much case specific evidence. The rather loose evidence provided by the Commission also stands in contrast with the US practice, where co-ordinated effects seldom play an important role in merger analysis⁴ and where the evidence used to support the finding of a likely co-ordinated effect is often substantial⁵.

Interestingly, the Court (and the Commission) also seems to presume that “tacit” co-ordination is relatively easy to undertake. For instance, in *Gencor/Lonrho*, the Court of First Instance ruled that in “tight oligopolies”, collective dominance will arise simply because firms will recognise their interdependence. This is described by the Court as a “relationship of interdependence existing between the parties to a tight oligopoly within which, in a market with the appropriate characteristics, in particular in terms of market concentration, transparency and product homogeneity, those parties are in a position to anticipate one another's behaviour and are therefore strongly encouraged to align their conduct in the market, in particular in such a way as to maximise their joint profits by restricting production with a view to increasing prices”. So, it appears that the Court sees collective dominance as deriving rather naturally from particular market circumstances. What is meant by a tight oligopoly is not clarified in the ruling or in the original Commission decision. This term has no clear definition in economic theory.

⁴ The recent decision on *Heinz/Beech-Nut* (United States District Court for the District of Columbia, October 2000) is interesting in this respect. The merger implies a concentration from three to two players and the industry features some of the characteristics that EU would consider as favouring collusion (for instance transparency). Still the merger was allowed and the issue of co-ordinated effects was not raised.

⁵ See for instance *Hospital Corporation of America vs FTC*.

(iii) *A comparison between Article 81 and the Merger Regulation*

As indicated above, firm evidence is required to find a violation of Article 81. By contrast, a finding of collective dominance can be established with rather loose evidence. At first glance, this may be surprising because Article 81 and collective dominance under the merger regulation are both about the same economic issue, namely collusion. A comparison of the evidence required for policy instruments which operate at different points in time (*ex ante* vs *ex post*) is a however delicate matter.

A few preliminary remarks are in order. First, it is worth emphasising that the distinction between *ex ante* and *ex post* regulation may not be essential. Both the evaluation of whether collusion has taken place and the evaluation of whether it might take place as a consequence of a merger will be uncertain. There will be a margin of error in any evaluation which is made. In other words, if it is concluded that collusion has taken place (or that it would take place as a consequence of a merger), there will always be some probability that it has not taken place (or that it would not have taken place as a consequence of a merger). What economists refer to as type I errors (and lawyers as false positives) will always be present. If it is concluded that collusion has not taken place (or that it would not take place as a consequence of a merger), there is always some probability that it has taken place (or that it will actually take place as a consequence of a merger). Type II errors (or false negatives) will never be zero.

Second, it is clear that reducing the margin of errors for *ex post* regulation may be easier than for *ex ante* regulation. The marginal cost of reducing uncertainty will typically be lower *ex post* because more evidence is available. Obviously, evidence of actual behaviour may be available *ex post* but will never be available *ex ante*⁶. Inferences from market characteristics will also be less certain *ex ante*, simply because such inferences can be drawn from past experiences and the future may be different for reasons that cannot be anticipated.

Third, it seems reasonable to assume that antitrust agencies are risk averse; faced with the choice of a merger which is bad with some probability and good otherwise so that it is neutral in expected terms and a merger which is neutral for sure, they will prefer the latter. What seems to underlie their attitude towards risk is also the cost associated with errors. As emphasised by Easterbrook (1981), legal systems tend

⁶ If the legal standard is defined in terms of necessary evidence (an approach which is often followed in legal discussions), the fact that the set of available evidence is narrower *ex post* implies that the legal standard may differ *ex post* and *ex ante*. The fact that material evidence of co-ordination is necessary to find a prohibition under Article 81 and (obviously) not to establish collective dominance under the merger regulation is an illustration of this.

to place particular emphasis on type I errors, because of a general presumption of innocence. In economic terms, emphasis on type I errors may also be warranted because of the negative indirect effect that type I errors will have on investment and profit incentives (if competition can be mistaken as collusion, the incentive to compete will be reduced).

Given such risk aversion, the antitrust agency will decide on collective dominance in a merger or an Article 81 case on the basis of its expected utility. In particular, it will allow a merger (or decide not to prohibit under Article 81) if the expected utility of allowing the merger is greater than the expected utility of not allowing it; the latter is negative and is associated with the cost of type I errors⁷. Because of its risk aversion, the agency will require some risk premium: in other words, only mergers (or agreements) which have (strictly) positive expected value will be allowed (will not be sanctioned). In addition, a higher risk premium will be required for cases whose evaluation is more uncertain (when the variance of the estimate is greater). Finally, a lower risk premium will be required when the probability (or the cost) of type I errors is large⁸.

These observations provide the following insights. First, it should not come as a surprise in principle that *ex ante* decisions should be surrounded with more uncertainty than *ex post* decisions. Given the cost of reducing uncertainty *ex ante*, an optimal allocation of the agencies' resources in gathering evidence should lead to less reliable evidence on which to base decisions in *ex ante* cases. Second, to the extent that an evaluation *ex ante* is surrounded with more uncertainty than an evaluation *ex post*, an agreement which has the same expected value as a merger with risks of collective dominance might be rightly allowed whereas the merger is prohibited. For a given expected value of the cases at hand, *ex ante* control should be more strict than *ex post* control.

In this framework, the observation that evidence towards collective dominance is loose under the Merger Regulation could also have two explanations. One the one hand, it may arise because of the difficulty in gathering *ex ante* evidence so that uncertainty cannot be reduced. One the other hand, it may arise because the Commission presumes that there is little uncertainty to start with; indeed, under the presumption that "collusion" takes place naturally, loose, generic evidence should suffice to remove residual uncertainty.

⁷ Of course, type II errors could also imply a cost. What matters is thus the net cost associated with type I errors (assuming that type I errors are most costly than type II errors).

⁸ If the cost associated with type I errors is large enough, even cases which have negative expected values could be allowed.

In our view, the first explanation is not wholly convincing. As discussed below, more compelling evidence could be brought to bear on collective dominance cases at little additional cost (as in the US). The second explanation is also supported by the statement of the Court discussed above – suggesting that collusion is indeed “easy”. However, if this explanation is retained, it implies that the Commission's attitude under Article 81 is not quite consistent with that found under the Merger Regulation. Indeed, if there is a general presumption that “collusion” is easy, it would also naturally apply *ex post* and loose evidence should be deemed sufficient under Article 81 as well. Arguably, even then, more compelling evidence might still be required *ex post* because of a lower risk of type I errors (relative to the type I error prevailing *ex ante*). It is not clear why this should be the case however, so that the strict evidence required under Article 81 is indeed hard to reconcile with the loose evidence found under the Merger Regulation.

Overall, it appears that Article 81 and the Merger Regulation operate with different presumptions about the likelihood of collusion. The former seems to assume that it is difficult. The latter that it is relatively easy. What has economics to contribute to this question? Can we safely presume that collusion is relatively “easy” or alternatively should we presume that collusion is relatively “difficult” so that the analysis of collective dominance should be seriously tightened? The next section will present a brief overview of what the economic literature has to say on the issue.

Collusion in experimental markets

As discussed above, the collective exercise of market power (collusion) is not compatible with short-term profit incentives so that firms need some enforcement mechanism (which obviously excludes contractual relations). Repeated interactions might provide such a mechanism; that is, the prospect that firms might lose the benefit of a collusive outcome might be sufficient to prevent them from taking advantage of their competitors in the short term.

However, many collusive outcomes can be supported by repeated interactions so that the main challenges for firms wishing to collude are

- (i) to establish adequate incentives (ensure equilibrium conditions) and
- (ii) to focus on a particular outcome (a problem of equilibrium selection).

Market circumstances will determine the incentives to some extent (this is indeed the idea underlying the checklist which is used by the Commission in collective dominance cases). But whether firms can obtain some basic understanding of each others, or some form of reas-

surance, is also likely to matter (for instance, some reassurance about the fact that competitors understand the logic of their interaction, or about the fact that competitors take a long term view of the market). It would seem in principle that communication between firms might help in achieving this. Communication might also help to focus on particular outcomes. What sort of communication is required is however unclear. Is it that social gatherings (like the famous Gary dinners held by Judge Elbert Gary, chairman of US Steel) are sufficient or that more focused discussions are required?

Hence, whether collusion is “easy” will to an important extent hinge on whether communication between firms is effective in building reassurance and focus on outcomes. Empirical evidence on whether collusion is “easy” without communication and whether communication helps a great deal is hard to come by because, as discussed above, outcomes in real market circumstances are hard to evaluate.

There is however one alternative methodology in economics which can shed some light on the issue, namely that of economic experiments⁹. The objective of this method is to re-create real-life situations in the laboratory and study how agents behave (for instance, examine whether agents tend to collude in repeated interactions). With respect to competition, the basic set up involves financially motivated subjects who take typical business decisions and compete against one another in specified market environments (in terms of demand, cost, information and so forth). One of the main advantages of this method is to allow for a precise control of particular market characteristics so that the effect of these characteristics can be isolated. Another advantage is that experiments (unlike real life) can be replicated.

It is beyond the scope of this short paper to review in detail the literature on economic experiments which is relevant to collusion in market games. A short account of this literature is provided in the appendix for the interested reader. In what follows, we focus on the main results.

The first striking observation, which arises from this literature, is that without communication, collusion is difficult to achieve. It is only in very simple market environments and with only two firms and a lot of experience that successful collusion appears frequently. When the number of players is increased, or the environment is made more complicated (for instance with different costs or different demands across firms), firms appear to be unable to sustain collusive outcomes. Interestingly, even a substantial amount of *ex post* transparency does not seem to help firms in sustaining collusion.

⁹ See also Kühn (2000) who reviews some of the early literature and focuses on the effect of communication.

Various types of communication can be allowed for in experiments. In some cases, free discussions are allowed before each decision is taken. In others, the communication is highly structured, for instance with only one firm being allowed to make a suggestion to its competitors. It would also seem that the communication which is allowed for in experiments is at least as extensive as what takes place in real-live industries which do not have particular institutions aimed at fostering concertation. Indeed, it seems unlikely that in real-live environments firms routinely and openly discuss their pricing strategy (something which is allowed for in experiments).

It is found that communication helps in sustaining collusion. The effect seems to be large and significant in simple environments. However communication does not appear to be very effective in overcoming difficulties of co-ordination in more complex settings. In typical market games, the effect of communication on the margins that can be sustained is modest and not very significant.

In addition, it seems that the type of communication which is permitted may matter a great deal. In some market circumstances, one-sided communication is more effective than free communication. In others, it is the converse. Interestingly, there is also some evidence that communication from a third party (which could for instance be an industry association) is particularly effective in fostering collusion.

The literature on economic experiments thus does not seem to support the presumption that collusion is “easy” without communication. In addition, it is found that if communication improves the scope for collusion, its effect is not dramatic unless the environment is very simple and that the type of communication which is taking place interacts the incentive structure in complex ways.

The communication which is allowed for in experiment is also extensive. Hence, it would seem reasonable to assume that the communication which is taking place on average in real live industries is no greater than what is allowed for in these experiments. From this perspective, the presumption that collusion is “easy” *and often prevails* is thus not supported from the experimental evidence. The presumption which underlies the implementation of Article 81, namely that collusion is rather difficult and is unlikely to be widespread, seems preferable.

Of course, experiments provide only one piece of evidence and one that should be treated cautiously given that outcomes often depend on details of the experiment’s design. Still, results are consistent across experiments and, as indicated above, alternative evidence on whether collusion is “easy” is also hard to come by.

Improving the evidence in collective dominance cases

As indicated above, the Commission currently tends to review factors that are meant to facilitate collusion without any clear benchmark to calibrate the absolute and relative importance of these factors. Because the Merger Regulation is in principle concerned about the effect of the merger, the Commission also examines whether these factors are affected by the merger. Its analysis in this respect is often as arbitrary as the evaluation of the factors themselves. How could the quality of evidence be improved?

With respect to the evaluation of the scope for collusion, it would seem appropriate to consider incentives explicitly and to focus on factors that can be observed and calibrated with some confidence.

Let us first consider incentives. As discussed in the previous section, successful collusion requires that the short term profits that firms can obtain by undercutting competitors is more than compensated by the loss of profits that would be associated with the period of intense competition that it would trigger (the punishment phase). It is probably useful in any collective dominance case to check whether this condition can realistically be met. This would include verifying whether undercutting in the short term would be profitable, whether punishment would be at all feasible for competitors and whether the loss of profits entailed by the punishment phase would be large. Various degrees of sophistication in the analysis can be contemplated. For instance, a simple analysis of the constraints met by competitors might reveal that they could not impose much damage in the short term because they face capacity constraints. This was for instance observed by Posner in his analysis of co-ordinated effects in *Hospital Corporation of America vs FTC*¹⁰. A more sophisticated analysis could also be undertaken using estimates of cross-price elasticities to evaluate the profitability of both deviation and punishments. Such cross-price elasticities are used in the evaluation of unilateral effects and there is no reason why they should not be used to quantify the importance of collective dominance (co-ordinated effects).

Let us now turn to the factors affecting collusion which can be evaluated with confidence. As discussed above, the effect of transparency is unclear in terms of principles. Ex post transparency which should help collusion could be monitored, even though the experimental evidence discussed above suggests that its role should not be overemphasised – so that the absence of *ex post* transparency may be more informative than its presence. As discussed by Halliday and Seabright (2000), the content of the information available to the firms is also hard to evalu-

¹⁰ United States Court of Appeals, Seventh Circuit, 1986, 807 F.2d 1381.

ate with any confidence. They suggest that the Commission should focus on the ownership and access of the information sharing mechanisms available in the industry. This is a factual information which can be gathered with confidence. The functions performed by industry associations and information centres and the public announcements that they make should also be considered (information on these institutions could actually be asked for in the CO form).

Any mechanism which can enhance trust and reassurance between the parent companies should be considered. In particular, the structural links between firms (like common joint ventures) cross-shareholdings, cross-representation in boards, simultaneous involvement in external organisations should be scrutinised. In addition, the existence of facilitating practices (like costing books, public price lists, most favoured customer contract, meet competition clauses) and the history of co-ordination should be systematically considered.

This does not imply that other factors currently considered by the Commission (in its checklist) should be totally neglected. But some calibration of their effect should be required. For instance, if the Commission claims that the degree of product differentiation in the industry makes collusion likely, it should be required to explain why and provide some quantification (showing for instance that the pattern of substitution between products in the industry is such that the incentives to collude are favourable).

Whether the Commission should be required to seriously evaluate the effect that the merger has on the likelihood of co-ordination is a delicate issue. In principle, a merger is unlikely to reduce the scope for collusion simply because it reduces the number of firms. A number of recent contributions have however highlighted how the reallocation of assets associated with a merger might affect the scope for co-ordination; these contributions identify some circumstances where a merger might reduce the scope for collusion¹¹. Whether these findings are sufficiently robust and whether the circumstances where mergers may not enhance the scope for collusion could be identified with confidence is however unclear. Interestingly, the US merger guidelines tends to emphasise the scope for collusion in the industry in its analysis of co-ordination effects and pay little attention to the effects that the merger might have on the scope for co-ordination¹².

¹¹ See Compte, Jenny and Rey, (1999) and Kühn and Motta, (2000).

¹² See section 2.10. of the US merger guidelines. In practice, the Commission's attitude is not much different given that the effect of merger is hardly ever scrutinised.

Concluding remarks

To sum up, this paper has argued that the treatment of collusion under Article 81 and the Merger Regulation seems to operate under different presumptions and that the presumption under Article 81, namely that collusion is not “easy” should be preferred. We argue that better evidence could and should be used in the analysis of collective dominance under the Merger Regulation.

A couple of closing remarks on collective dominance may be in order. First, it is striking that there is so little concern for collective dominance in notified agreements. Indeed, the Merger Regulation is not the only instrument of *ex ante* control available to the Commission. The system of notification and exemption under Article 81 also allow for an *ex ante* control. Oddly enough, the balancing of competition concerns and efficiency benefits under Article 81(3) does not seem to consider potential collusive practices at least as routinely and explicitly as in the Merger Regulation. To the best of our knowledge, the only case where risks of collective dominance have explicitly been considered is the proposed agreement between P&O and Stena (Case IV/36.253, 1999)¹³. In terms of principles, it is not clear why agreements between firms in an industry might not regularly increase the prospect for collusion. Arguably, a number of vertical as well as horizontal agreements, like resale price maintenance, exclusive dealing and some joint venture agreements, can create conditions that are favourable to collusion, in the same way as mergers.

Second, it is worth briefly discussing the issues raised by the use of collective dominance in the context of Article 82. The recent case law has established a clear link between the Merger Regulation and Article 82 with respect to collective dominance. Since the *Flat Glass* judgement, the scope of Article 82 explicitly includes situations of collective dominance (in addition to dominant positions held individually). In addition, the Court has clearly indicated¹⁴ in *Gencor/Lonrho* that the concepts of collective dominance under the Merger Regulation and Article 82 should not be seen as fundamentally different¹⁵. Hence, if collective dominance is indeed understood as collusion under the Merger Regulation, it appears that the scope of Article 82 includes situations of collusion between firms. What is prohibited by Article 82

¹³ It has also been alluded to in the proposed joint venture between GE and Pratt & Whitney (case IV/36.213/F2 - OJ L 58,3.3.2000. See para 75 which refers to conditions of “tight” oligopoly.

¹⁴ See Faull and Nickpay (1999), page 142.

¹⁵ More precisely, legal requirements with respect to the economic links between firms should not be seen as fundamentally different.

is still not collusion *per se* but the abuse of the dominant position which is associated with collusion¹⁶.

Hence, it appears that the *prospect* that collective dominance *might* appear in the future is a sufficient ground for prohibiting a merger but the *existence* of collective dominance is not unlawful *per se*.

As noted by Whish (2000), the exercise of market power associated with collective dominance could however be seen as an abuse. Hence, the prospect that collective dominance would arise would also imply that an *exploitative* abuse would take place. From that perspective, Article 82 and the Merger Regulation would appear to be reconciled. Still, if the same concepts of collective dominance are used in the Merger Regulation and Article 82, it is not clear why the market power associated with collective dominance should not be seen as an abuse *also ex post*, i.e. under Article 82 – where currently only exclusionary abuse are typically considered. At the very least, the different standard being applied *ex post* and *ex ante* would have to be justified. Notice as well that if the same economic standard was applied, it is not clear what would be the function of Article 82 relative to Article 81. Both would appear to prohibit the collective exercise of market power.

All of this is to say that the concept of collective dominance as used in the Merger Regulation does not sit comfortably with the current use of Article 82. A similar problem could of course arise with the concept of single firm dominance. If dominance was understood in terms of market power under the Merger Regulation (it is not clear that it is at the moment), and if dominance was understood in the same way under Article 82, then it would seem that the market power associated with dominance should also be seen as sufficient abuse under Article 82 (again assuming that the same economic standard applies).

Whether the same economic standard should be used in the Merger Regulation and Article 82 is thus a central aspect of this debate. A discussion of whether such a policy stance is appropriate is beyond the scope of this paper. One possible line of reasoning is that dominance through mergers should be considered more strictly than dominance achieved in the market place in order to maintain incentive for the latter. Such an attitude would be associated with a presumption that the incentive to achieve dominance in the market place is an important element of competition (in a *Schumpeterian* sense). Note however that the argument may have more merit for single firm than collective dominance. Indeed, it is not clear why firms should be encouraged to collectively exercise market power without merger.

¹⁶ For instance, in the case of the maritime conference between Belgium and Zaire, the Court found that the companies involved in the conference held a collective dominant position. This was not unlawful *per se* (indeed the conference benefited from an exemption under 81(3)) but the use of fighting ships was considered to be an abuse of this position (joined cases T-24/93, T-25/93, T-26/93 and T-28/93, CEWAL vs Commission ECR 1996 II-1201).

Appendix

A review of the experimental evidence

We first consider collusion in market games without communication and subsequently analyse how communication changes the matter.

Collusion in market games without communication

Many experiments have considered repeated market games where firms set prices or quantities. See for instance, Davis and Holt (1993) or Holt (1995) for surveys of the early literature.

Collusion tends to appear in simple duopoly games with a very large number of iterations (Alger, 1987). Note that in these experiments, the subjects perfectly observe the behaviour of their competitor. Typically prices are U shaped over the experiment. When more complex market primitives (like demand inertia – see Keser, 1992) or cost asymmetries (Keser, 1992, 2000) are introduced, collusion is both less regular (there is more variability in outcomes) and less successful on average. For instance, with demand inertia and no experience, duopolists only increase profits by 2% relative to the Nash equilibrium. With experience, profit increase by 20 %.

A different market game where duopolists locate on a Hotelling line (with fixed prices) is reported in Brown-Kruse and Schenck (1993) and (2000). They find that in repeated interactions firms cannot do better than settle for the Nash equilibrium (such that both firms locate at the centre of the market). This holds for various types of customer distributions – which correspond to different levels of “risks” associated with an attempt to co-ordinate for one player if the other one does not follow (and remain at the centre).

It also appears that when the number of competitors increases, the frequency of successful co-ordination decreases sharply. See for instance, Alger (1987) who finds that successful co-operation in about one third of the sessions when the number of players is increased from two to four – or Kruse et al (1990) who find average prices close to the competitive level¹⁷.

Huck et al (2000) also report experiments with four players who decide either on prices or quantities. They find that when firms are only informed about the aggregate output and aggregate profits after each

¹⁷ Interestingly, it appears that co-ordination is also difficult in repeated pure “co-ordination game”, that is game with several Pareto-ranked equilibria (where there is no conflicting objective among players – as in a market game). Experiments reported in Van Huyck et al. (1990) suggest that the best equilibrium is hardly ever selected and that the players always converge to the least attractive equilibrium.

round, the outcome is not significantly different from the single shot Nash equilibrium (either Cournot or Bertrand). They also consider an environment where firms have disaggregate information about their competitors' strategy and profits. Remarkably, they find that behaviour is not more co-operative than in the environment where only aggregate information is available. In the case of Cournot competition, observed quantities and profits are then even lower than in the static Nash equilibrium.

The authors interpret these observations by suggesting that firms follow an "imitation" strategy (as in Vega-Rodondo, 1997). Indeed, when firms tend to follow the strategy of competitors who are relatively more successful, the market converges to the competitive outcome¹⁸.

Consistent findings are reported in Harstad et al (1998). These authors consider a repeated Bertrand game in which firms are informed about the price of their competitors after each period. In most of their experiments prices remain around the static Nash level. In remaining experiments prices are more variable but margin remain low on average.

This evidence tends to cast some doubt on the conventional wisdom that the dissemination of individual firm data should be much more of a concern from a public policy perspective than the dissemination of aggregate information. One possible interpretation of this evidence is that disaggregate firm data, which is arguably essential to detect potential deviation by competitors, is irrelevant as long as firms have not established some sort of focal point. To the extent that such focal point can be established by pre-play communication, there may be a complementarity between *ex post* information exchanges and *ex ante* communication.

Does communication help?

As discussed above, pre-play communication presumably helps both to establish some basic trust or reassurance among players and to select a particular outcome.

In principal pre-play communication does not carry any commitment value. It is "cheap talk". However, "cheap talk" can perform a useful function. It can be used in order to signal private information (with the constraint that the sender of a message cannot be punished for lying and hence commit not to lie if it is advantageous for him to do so). In effect, as discussed by Crawford (1998), the sender of a message says

¹⁸ The final outcome might however depend on what firms imitate. A large class of adaptive learning process actually converge to the Nash equilibrium (see Milgrom and Roberts, 1991). Huck et al. (2000) also describe a trial and error process which converges to the monopoly outcome.

to potential recipients that “given the realisation of his private information, he will like what the recipients will do as least as much as anything that he could get them to do by sending a different message”. Such a form of communication will be useless when the interests of the players are perfectly opposed – in which case the cheap talk equilibrium will be a “babbling equilibrium”. However, in market games or in pure co-ordination games, there is some commonality in players’ interests and communication via cheap talk can be informative.

In the context of market games, attention has focused on signalling of players’ intentions for future decisions. Farrell (1987) assumes that players take the first set of announcements, which is consistent with equilibrium as the “truth” and ignore all other announcements. He shows that in this context, players will manage to resolve strategic uncertainty in simple co-ordination games.

The effect of pre-play communication in market games has been considered in Harstad et al. (1998) and Brown-Kruse and Schenk (1993 and 2000). It is worth emphasising that market games involve more conflicts of interest than pure co-ordination games (for which most theoretical results have been derived). As expected, the effect of pre-play communication has been tested more frequently in the context of pure co-ordination games (see Crawford, 1998 for a survey). It is still useful to briefly review such experiments to illustrate the effectiveness and potential shortcoming of pre-play communication.

(i) *Co-ordination games*

Various types of pre-play communications have been considered, involving either structured or free communication (where the timing and content of messages is unrestricted). Where communication is structured, one or several rounds of communication can be allowed and announcements can be either simultaneous or sequential.

It appears that the design of the pre-play communication is important and that the effective design is related to the underlying structure of the game. This is particularly striking for games like the battle of the sexes which require symmetry breaking. In such a game, husband and wife are better off if they play the same strategy (both go to the movie or the football pitch) but one of them is better off than the other in each symmetric equilibrium. In a sense, one of them has to “give in”, i.e. break symmetry, in order to make both better off. In those circumstances (see Crawford, 1998), a single round of one-sided communication is most effective, yielding 95% of co-ordination (unsurprisingly almost always on the equilibrium which is preferred by the sender of the message) and only 55% with two-sided communication and 41% with no communication.

By contrast, in co-ordination games which do not require symmetry breaking, bilateral communication is much more effective, yielding 90% of co-ordination whereas one-sided communication yields only 53%. The Stage Hunt game (first considered by Rousseau) is a case in point, where hunters can either wait at their post for a big game or shoot at a rabbit. If all wait, they end up getting a large game. If all shoot, they all get a rabbit (a lower price). If one shoots, he gets a rabbit and the other ones do not get anything (the big game is frightened away). It appears however that the outcome of the experiments is highly dependent on the payoff of the dominated equilibrium (how much is obtained when all get a rabbit). If the payoff obtained at this equilibrium is high enough, co-ordination through cheap talk works well. However, if the payoff is so low that any player will always prefer that his opponent does not shoot, cheap talk is much less effective. Intuitively, this arises because when hearing intentions of not shooting, recipients are less confident that the sender might not shoot when they do nothing (and obtain more than if they both shot).

This suggests that cheap talk is a very delicate mechanism even in simple co-ordination games – where there is little conflict. Presumably, when there is a conflict of interest between players like that of a prisoner's dilemma, co-ordination will be even harder to achieve.

Finally, it is worth reporting evidence from Van Huyck et al (1992) about the effectiveness of "0-sided" communication. This is an instance where suggestions about possible outcomes are made publicly by a third party. They find that suggestions of either symmetric or efficient equilibria are very effective, with a co-ordination rate of 98% (versus 40% without outside suggestion). By contrast, suggestions of inefficient or unfair equilibria do not significantly change the outcome. Communications from third parties might actually be effective because it is more reassuring, being perceived as more independent. This may suggest that public policy should be particularly concerned about communication from trade organisations.

(ii) Market games

Harstad et al (1998) consider an environment where four players set prices in a repeated market game in which actual prices, sales and payoffs are communicated after each stage. They compare a situation without prior communication with one in which players can make repeated multilateral announcements at each stage. In this set up, firms thus have perfect information about the strategy of their competitors. Communication is also allowed throughout the game.

As mentioned above, without communication, prices are close and often below the Nash level. When communication is allowed, prices are in general no longer set below the Nash level. In half of the experi-

ments, prices hover around the Nash level. In the others, some attempt to co-ordinate is observed, to the extent that some firms try to set relatively high prices early on in the game. However, prices tend to decline over time and to converge to the Nash level.

Testing for the significance of communication (using the results of all experiments as a sample), it is found that that pre-play communication increases margins by 10–15% (but the coefficient is barely significant). This result is however found when introducing dummies for the very high prices obtained in some experiments where firms were trying to entice competitors into a collusive outcome. Given that these prices can be rationalised as part of the experiment, it is not clear that their significance should be dismissed. Presumably, without these dummies, the significance of pre-play communication for profits would be even lower.

Harstad et al (1998) also report the results of an experiment where pre-play communication is much more structured; each firm can announce a new price. After a new price has been announced, competitors can only decide whether or not to match the announced price change. In theory (see MacLeod, 1985), if firms start from the Nash level and apply this strategy, prices should converge to some intermediate level in between Nash and collusive prices. In the experiments, it is found that such structured communication is more effective than the free communication considered above; in this case, communication is highly significant and can increase profit by as much as 50%. Interestingly, however, such increase falls short of what theory would predict. In addition, one observes a very high variability in outcomes. Prices do vary a great deal within an experiment and the pattern of prices also varies a great deal across experiments.

Brown-Kruse and Schenk (1993, 2000) also allow for communication in the simple location game described above with only two firms and full information after each iteration of the game. They find that pre-play communication is very effective (the firms quickly converge to the profit maximising locations) when the distribution of customer is uniform. This is a simple environment where the cost of moving away from the Nash equilibrium is not very large. When the distribution of customers is unimodal (with the peak at the centre), communication also helps but to a lesser extent. This is an environment where there risk of moving away from the centre is greater. Finally, when the distribution is bimodal (with peaks at the edges), communication helps but firms cannot even obtain the Nash profit (admittedly without communication, they only obtain half of the Nash profits). This environment is much more complex than the previous ones as the Nash equilibrium is not at the centre in this case (but involves location around 0.3 and 0.7 respectively). A great variety of outcomes is also

observed across experiments in this case. Finally, it is striking that when the choice set of the firms is reduced to a 2x2-matrix game, firms manage to do better than the Nash equilibrium even without communication.

Overall, this collection of experiments supports the view that the complexity of the environment is a significant impediment to coordination and that communication is of limited help in overcoming the difficulty. In assessing the results of these experiments, one should also bear in mind that Hotelling's location model is a very simple framework and that players in the experiments have access to a lot of information – including information on the distribution of customers and also have the opportunity to experiment with the payoff function of the game. Presumably, real life environments are harder to decipher.

References

Alger, D., (1987), Laboratory tests of equilibrium predictions with disequilibrium data, *Review of Economic Studies*, 54, 105-145.

Brown-Kruse, J., M.B. Cronshaw and D.J. Schenk, (1993), Theory and experiments on spatial competition, *Economic Inquiry*, 31(1), 139-165.

Brown-Kruse, J. and D.J. Schenk, (2000), Location, co-operation and communication: an experimental examination, *The International Journal of Industrial Organisation*, 18 (1), 59-80.

Compte, O., F. Jenny and P. Rey, (1999), Capacity Constraints, Mergers and Collusion, mimeo.

Crawford, V., (1998), A survey of experiments in communication via cheap talk, *Journal of Economic Theory*, 78, 286-298.

Davis, D. and C. Holt, (1993), *Experimental economics*, Princeton University Press, Princeton.

Easterbrook, F., (1981), Predatory strategies and counterstrategies, *University of Chicago Law Review*, 48 (2), 263-337.

Farrell, J, (1987), Cheap talk, co-ordination and entry, *Rand Journal of Economics*, 18, 34-39.

Faull, J. and A. Nickpay, (2000), *The EC law of competition*, Oxford University Press, Oxford.

Halliday, J. and P. Seabright, (2000), Networks Good, Cartels Bad - but how could anyone tell the difference?, this volume.

Harstad, R., S. Martin and H.T. Norman, (1998), Experimental tests of consciously parallel behaviour in oligopoly, in Philips L. (ed), *Applied Industrial Organisation*, Cambridge University Press, Cambridge.

Holt, C., (1995), Industrial organization: a survey of laboratory research, in Kagel, J. and A. Roth (eds), *Handbook of experimental economics*, Princeton University Press, Princeton.

Huck, S., H.T. Norman and J. Oechssler, (2000), Does information about competitors' actions increase or decrease competition in experimental duopoly markets?, *The International Journal of Industrial Organisation*, 18 (1), 39-58.

Huck, S., H.T. Norman and J. Oechssler, (2000), Through trial and error to collusion, mimeo, Humboldt University Berlin.

Keser, C., (1993), Some results of experimental duopoly markets with demand inertia, *The Journal of Industrial Economics*, 41, 33-151.

Keser, C., (2000), Cooperation in symmetric duopolies with demand inertia, *The International Journal of Industrial Organisation*, 18 (1), 23-38.

Kruse, J., S. Rassenti, S. Reynolds and V. Smith, (1990), Bertrand-Edgeworth competition in experimental markets, working paper, University of Arizona.

Kühn, K.-U., (2000), Fighting collusion by regulating communication between firms, mimeo, University of Michigan.

Kühn, K.-U. and M. Motta, (1999), The Economics of Joint Dominance, mimeo, University of Michigan.

MacLeod, W., (1985), A theory of conscious parallelism, *European Economic Review*, 27, 25-44.

Milgrom, P. and J. Roberts, (1991), Adaptive and sophisticated learning in normal form games, *Games and Economic Behaviour*, 3, 82-100.

NERA, (1999), When three is not enough? The Airtours first choice decision, NERA Competition Brief, N 8, September.

Neven, D., P. Papandropoulos and P. Seabright, (1998), *Trawling for minnows. Agreements in EU competition policy*, CEPR, London.

Philips, L., (1995), *Competition policy: a game theoretic perspective*, Cambridge University Press, Cambridge.

Van Huyck, J., R. Battalio and R. O. Beil, (1990), Tacit co-ordination games, strategic uncertainty and co-ordination failure, *American Economic Review*, 80 (1), 235-247.

Van Huyck, J., A. Gillette and R. Battalio, (1992) Credible assignments in co-ordination games, *Games and Economic Behaviour*, 4, 606-626.

Vega-Rodondo, F., (1997), The evolution of Walrasian behaviour, *Econometrica*, 64, 375-384.

Whish, R., (2000), Collective Dominance' in Judicial Review in European Union Law, *Liber Amicorum in Honour of Lord Slynn*, O'Keefe and Bavasso (eds), Kluwer Law International.

5 Networks good, cartels bad: but how could anyone tell the difference?

Jennifer Halliday and Paul Seabright

Introduction

Fashions in pop sociology come and go, but at almost every period of recent history there have been forms of social organization that particularly appeal to people anxious about the rootlessness and anonymity of industrial society. Guilds, teams, brotherhoods, clans, alliances, gangs, classes, bands, have all enjoyed their time in the sun. Now the runaway popularity of the Internet in the last five years has granted to networks a glow of almost universal approval. We talk of networks of friends, of professional contacts and collaborators, communication networks, network industries, networks of spies, sales representatives, radio transmitters. The term “network” is not new – and even in its figurative sense was used as early as the first half of the nineteenth century – but it has never been used with such enthusiastic abandon as at present. It almost always implies that the effectiveness of the objects or individuals concerned is massively enhanced by the group of which they form a part. Never mind that networks may face problems of coordination or stability; the phrase comes with a more positive connotation than many others that appear superficially to denote much the same thing (such as “coalition”¹ or “group”).

More pertinently for the present context, networks of firms, entrepreneurs or research laboratories have been argued to be crucial for the diffusion of knowledge and the effective use of skills and technology. Industrial policy in the developed economies increasingly focuses not on “picking winners” (now discredited by the large numbers of losers favoured and even created by such policies) but on building up innovation networks (or “clusters”)². There is good evidence that the capacity of firms to innovate depends not just on their own skills and capacities but on those that characterise other firms in their vicinity. Whether these locational effects are due entirely to the presence of markets for skills and other scarce inputs, or whether there are direct spillovers between firms that are not mediated by market transactions

¹ Indeed, coalitions are a byword for instability, as is evidenced by the frequency with which they come qualified by such epithets as “shifting” or “fragile”.

² See Braunerhjelm et.al. (2000) for a review of these issues in the context of the EU.

is a matter of considerable dispute. But it seems likely that flows of information between firms (which are a necessary condition for one firm's capacities to be influenced by those of another) may occur in a large number of ways of which market transactions are only one manifestation.

How then can competition be refereed in such circumstances? And in particular how can anti-trust policy's traditional hostility to cartel behaviour be reconciled with the fact that networks involve the exchange of information – information the use of which may facilitate cartel formation or continuation? Is there a way to tell in advance what kinds of network are most likely to behave like cartels? Or is it as difficult as it is for the non-medical person to tell the difference between a medicine and a poison – by the time you've found out, the damage may be irremediable.

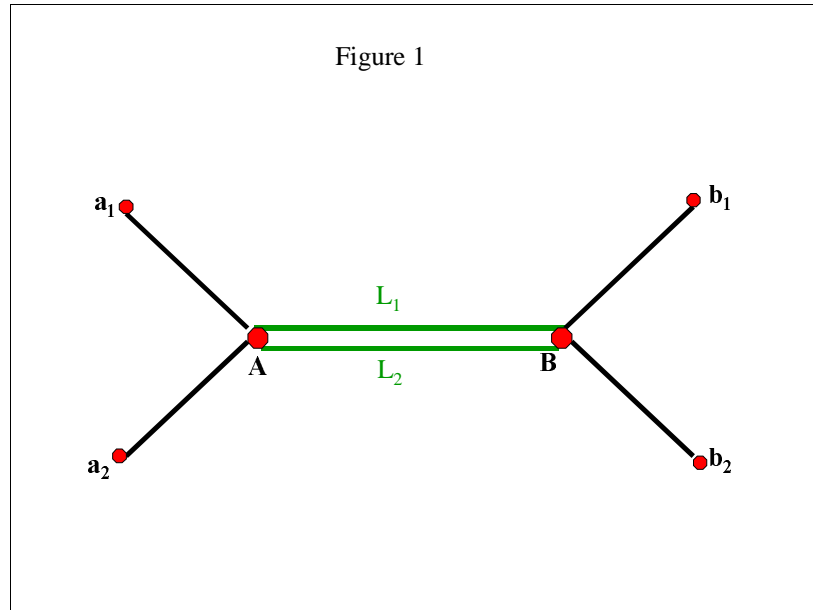
Networks and cartels – some foundations

There is no difficulty in telling the difference *in theory* between a “good” network and a “bad” cartel. As Economides (1996) puts it: “A network is composed of links that connect nodes. It is inherent in the structure of a network that many components of a network are required for the provision of a typical service. Thus, network components are complementary to each other”. This complementarity is the source of positive network externalities: adding an extra link to the network increases the value of the services that can be provided at some or all of the existing nodes. Therefore in principle the different nodes in a network appear to have a common interest in increasing the output and reducing the price of services provided at other nodes. Allowing some degree of coordination between the different nodes of a network seems therefore not only harmless but positively beneficial in allowing these positive externalities to be fully realised.

At first sight this seems the antithesis of relations within a cartel. Members of a cartel produce *substitute* products or services. They have a common interest in reducing the output and increasing the price of products or services provided by members of the cartel. Coordination between them cannot but be damaging. In principle therefore it seems as though identifying cartels should be easy. Look for producers of substitute products or services. Make sure they have minimal opportunities for coordination.

Unfortunately most interesting cases are not so simple. First of all, relations within a network typically involve some degree of substitution as well as some complementarity, a significant possibility as soon as three or more nodes are involved – a fact any child knows from the school playground and which in its application to networks of erotic

attachment has been the subject of countless novels. To see how complex are the interrelationships, consider the following diagram, representing an extremely simple network:



The diagram can be interpreted as a telecommunications network, with a_1 , a_2 , b_1 , and b_2 the subscribers and A and B their respective exchanges (though a variety of other interpretations are possible). Links are identified by the nodes they connect (Aa_1 links A with a_1 for instance) except where there are more than one link between a pair of nodes, in which case they are identified separately (as with L_1 and L_2). For subscriber a_1 , therefore:

- Bb_1 and L_1 are complements to Aa_1 and to each other.
- Bb_1 and L_2 are complements to Aa_1 and to each other.
- Bb_2 and L_1 are complements to Aa_1 and to each other.
- Bb_2 and L_2 are complements to Aa_1 and to each other.
- L_1 and L_2 are substitutes for each other.

Bb_1 and Bb_2 may be either complements or substitutes depending on circumstances.

The nature of the relationships between the nodes will depend importantly on whether the value created at each node depends principally on actions taken at that node, or to a considerable degree on actions taken at other nodes. If we consider only the network benefits to subscribers arising from actions they initiate themselves (making

calls, for example), then in such a relatively simple network it is clear that the value of the network to subscribers a_1 and a_2 cannot decrease in the number of subscribers served by exchange B (they can always choose not to communicate with the additional subscribers). It is for this reason that we often make the simplifying assumption that the more subscribers there are, the better (that network externalities are always positive).

But once we consider benefits to subscribers arising from the actions of other subscribers then even this simple rule of thumb may no longer hold. Suppose at first only b_1 were connected to B. Then adding b_2 would give a_1 an extra person to call (a positive externality). But it would also give b_1 an extra person to call, which might compete with b_1 's willingness to call a_1 , thereby imposing a negative externality on a_1 . If extra nodes principally compete for the scarce resources (such as time or effort) available at other nodes, these negative externalities may well outweigh the positive ones – they are in effect fishing in a common pool consisting of the scarce resources of the network as a whole. If instead the extra nodes represent not just claims on a limited stock of overall resources but opportunities that expand the possibilities for the network users as a whole, the positive externalities may outweigh the negative ones.

In most practical cases there exists strong coordination between some parts of a network and weak coordination between other parts. So, for instance, A and B might represent cities that are the hubs of two airlines: airline A competes with airline B to offer inter-hub services, but each has a monopoly on the services from its own hub to the smaller cities in the hinterland. Each can therefore be expected to coordinate closely the services it controls, while coordinating only weakly with the services controlled by the other. For each airline the inter-hub service provided by the other is a substitute for its own inter-hub service and a complement to its own hinterland services. Each airline therefore wishes to coordinate closely its own inter-hub service with the hinterland services provided by the other, while ensuring that its own hinterland services coordinate much less well with the inter-hub services of the other than with its own.

What would be the impact of an explicit agreement between the two airlines to coordinate their operations – either a full merger or an agreement to plan their services in common? It very much depends upon the balance of effects. A full merger, for instance, would almost certainly result in a reduction in inter-hub services but a more careful coordination of inter-hub and hinterland services, and it is very hard to know to what extent the value of one would outweigh the value of the other.

Airline and telecom networks are not unusual. Computer software, the car industry, broadcasting, pharmaceuticals, even the food industry, all have the property that some parts of the chain may be complementary to each other while other parts are substitutes. A piece of software may be an essential input to an overall programme (making it complementary to other components) while at the same time competing with some of the functions of those other components. That is why a supplier of an operating system to writers of applications may simultaneously produce applications of its own to compete with them. A supplier of car components may simultaneously be producing complements to the overall product of the assembler and substitutes for some of the components that have hitherto been produced in-house. A patented molecular sequence may be complementary to some of the molecules developed by a rival firm and a substitute for others. Unprocessed food is both an essential input into the food-processing industry and simultaneously a competitor with it for the attentions of the consumer (as the growth of organic farming reminds us).

What does this mean in practice for the work of anti-trust authorities? When two parties begin a process of collaboration, what can be said about the attendant risks of cartel behaviour? I want to distinguish four possible views as to the appropriate role of anti-trust enforcers:

Narrow scope – the view that cartels are, properly speaking, only to be found where the parties produce strict substitutes, and all other kinds of network fall outside the proper scope of cartel investigation.

Broad scope – the view that all collaboration between parties that are involved in any kind of substitute activity is improper, even if this collaboration concerns coordination in the production of complements.

Intermediate scope (structural criteria) – the view that some collaboration between participants in a network is necessary, but some is dangerous, and that the difference between the two is to be determined using criteria based on the structure of the networks concerned, and specifically upon which participants propose to collaborate.

Intermediate scope (content-based criteria) – the view that the difference between necessary and dangerous collaboration between participants in a network is to be determined according to the type of collaboration envisaged, and specifically the content of the information and commitments exchanged between them.

A moment's reflection shows that only the two intermediate scope views are seriously entertained by anybody. Nobody seriously believes that cartel investigation should be restricted to cases where the parties involved produce only substitutes, even if it is true that actual anti-cartel cases have been concentrated disproportionately in industries producing relatively undifferentiated commodity products where

there are no evident coordination benefits between producers of complementary products to offset the risks of collusion among substitute producers (steel, soda ash, wood pulp, polypropylene, flat glass, cartonboard and cement, to take the most notable examples³). This may be, of course, because of the risks of collusion are objectively greater in such industries than in others (there being a greater incentive to collude, and a greater ease of monitoring collusive agreements). Or it may be in part because that is where the authorities look for evidence of cartel behaviour. However, even if there is a tendency in this direction, neither academic commentators nor anti-trust enforcers have ever seriously claimed that it should be the sole focus of anti-cartel activity.

Likewise nobody now believes that all forms of cooperation between producers of substitute products should be illegal, although the US authorities have in the past been closer to adopting this line than those of other jurisdictions. In the European Union, Article 81(3) of the Treaty specifically provides for the exemption of certain cooperative agreements, and many of the categories of case where such exemptions are easiest to obtain concern precisely the circumstances where certain products or services are complementary to others and require coordination to ensure that they are produced in appropriate amounts, characteristics or specifications. Research and Development agreements or joint ventures, and agreements on standard setting, are two obvious types of case.

So how are the benign cases to be distinguished from the dangerous ones? Specifically, is it the structure of the network that counts, or the nature of the interactions that take place within it? As we shall see below, EU policy in this area has never explicitly answered this question – not surprisingly, since it is very difficult to answer. It has preferred to muddle through, investigating structural changes when they occur with a view to anticipating the likely impact on cartel behaviour, and then attempting to monitor the content of network interactions as they come along. One school of thought focuses on the type of information exchanged by producers of substitute products: in particular, according to this view, for producers to exchange information about prices of goods or the quantities produced and stocked can only be suspect. Information about technical standards, or about aggregate amounts available in a market poses a much less serious threat. An influential recent exposition of this view is in Kühn & Vives (1995, esp. pp. 110–119; see also Vives, 1999, esp. 319–321).

It is possible to be sceptical of the authorities' ability to control such information exchange without necessarily believing prohibition on such exchanges to be undesirable. This is because cartel behaviour

³ See the discussion in Neven et al. (1998, chapter 3).

that is obliged to remain secret is by that very fact more vulnerable to defection by individual cartel members. In some areas of the law dangerous behaviour that is driven underground becomes thereby even more dangerous. In this case, fortunately, it becomes rather less so.

However, although the Kühn-Vives view can survive a degree of scepticism about the enforceability of prohibitions, there is another problem which is much more serious, or will become so in the near future. As Kühn & Vives (and others) recognize, information about the behaviour of participants in the market is not intrinsically bad for competition; it all depends who makes use of it. If it is used primarily by competitors it helps to shore up cartels. But if used by customers it helps to sharpen competition and make demand much more sensitive to price: after all, how are customers supposed to obtain value for money if there is no information as to where and for what price different products and services are to be found? In the context of standard industrial agreements it has often been fairly clear whether information was destined for customers or competitors, and anti-trust policy has been reasonably able to differentiate between agreements on this basis. But the massive decline in the costs of information transmission and exchange made possible by computer networking in recent years threatens to disturb this complacency to a radical degree. To see why we need to consider the impact of the information economy in more general terms.

The impact of the information economy

What is at issue fundamentally in this discussion is the impact of information exchange within a network. The answer to this cannot avoid being importantly affected by the current dramatic changes in the role of information technology in economic life; particularly since the internet is not just about the technology of manipulating information but above all about the technology of exchanging it. I want to focus on the following four implications of the information economy:

First, it makes it impossible for the authorities to make their policies conditional on the precise content of information exchanged between firms. Not only is there simply too much to monitor, but it can be too easily encoded. A file purporting to be about aggregate market data can, with a flick of a password, be turned into a file about something quite different, such as individual production data. Similarly, cartel conspirators no longer have to meet in smoke-filled rooms; a password-protected bulletin board will do just as well. It is inconceivable that the authorities will be able to monitor all such exchanges, nor is it even desirable that they should try. Of course, whistle-blowers may still lay bare the functioning of an internet cartel as they once exposed cartels

that met physically, but these will be rare occurrences. Once again, this does not mean that legal prohibitions on market sharing are useless, for by driving them underground they make cartels somewhat more unstable. But it does mean that successful cartel prosecutions are likely to become increasingly rare, and to signal a basic lack of intelligence on the part of those caught.

Secondly, the concepts of uploading and downloading have shown clearly that information does not have to be exchanged directly between participants to have a potential for collusion: a third party can act as the informational broker just as well. In a sense this is no more than an application of the Coase theorem to collusion (if two parties have an interest in colluding and cannot pursue it directly we would expect an intermediary to find it profitable to offer the service). It implies that we need to know what are the incentives of the parties acting as informational brokers. It is futile for the authorities to seek to ban exchanges of information about individual pricing behaviour of competitors, if a website devoted to comparison shopping immediately opens up instead⁴. The important point is that a website enabling comparison-shopping will be transparent and designed in a way to enable the greatest value to be enjoyed by buyers. A website facilitating collusion will be opaque to buyers and designed only to identify departures from cartel agreements. What distinguishes the two is not the nature of the information exchanged, but the use that is made of it, the way it is presented, and most importantly, in whose interests the website is designed. This emphasizes that the ownership of the site is a more important consideration for assessing its impact on competition than the intrinsic nature of the information it contains⁵. It also implies that if a website is set up for the purposes of collating industry information, rather than trying to control the kinds of information contained on the site the authorities would do better to ensure that access to the information is made available on equal terms to buyers and is not confined to sellers.

Thirdly, while the information economy is certain to create large rents, these rents will be constantly bid away by imitation and by-passing: whenever an informational bottleneck exists there is an in-

⁴ This possibility seems most likely in the case of retail sales. Nevertheless, it can be envisaged at the wholesale level (several car firms have announced their intention to undertake web-based coordinated buying). As in the retail case the impact of such initiatives on competition depends primarily on whether there is access to the information for upstream and downstream firms and not just for competitors. See The New York Times of 7th July 2000 for an article on antitrust concerns about B2B ("Business-to-Business") sites.

⁵ This is not to say that ownership-based criteria are easy to enshrine in law. We are avoiding here the issue of how to design a legal criterion; we are merely pointing out that ownership and access, rather than content, will be the circumstances that determine the overall effect on competition.

centive to find an alternative route to the same end. To take an example, many manufacturers are currently hoping for large profits from being able to categorize consumers on the basis of detailed information about their shopping habits. Amazon.com regularly tells me that it can anticipate my willingness to buy a new book or record on the basis of my purchases in the past. General Motors has signed a deal with a life event website (one devoted to support and information for people in the throes of marriage, divorce, parenthood, bereavement) to obtain favoured links on the site. This initiative has been prompted by market research claiming that eighty per cent of people undergoing a "life event" buy a new car within a year. While one can imagine some surreal encounters ("Dear Mrs Smith, we're so sorry to hear about your husband. We'd like to offer you our condolences and wonder whether now might be the time to think about switching to a smaller car..."), there is no doubt that a shrewd commercial instinct is involved. Customers differ, and if you can discriminate between them you can extract more rent from those with a higher willingness to pay. And yet this instinct may itself be soon outdated. In the past, a firm that identified customers with a relatively high willingness to pay could be reasonably sure to extract a large share of the resulting rent. (Remember Ryan O'Neal as the unscrupulous bible seller in the film "Paper Moon", preying on the relatives of the recently deceased, to whom he would claim that the departed had wished to buy an expensive bible). Nowadays Mrs. Smith has only to say "Thank you GM" and switch to another website offering her comparative prices for all the cars she has identified as suitable for her newly bereaved condition (that open-top she always wanted...). In other words, website information can identify customer characteristics for the benefit of firms, but there are strong forces making customers themselves the most likely long-run beneficiaries.

Fourthly, and relatedly, barriers to entry based purely on control of information are likely to become less important than they used to be. Information is too easy to copy, software too vulnerable to reverse engineering. Copyright protection and commercial secrecy alone are capable of giving one firm a *timing* advantage over another, but very rarely of consolidating a permanent advantage. By contrast, the really dangerous barriers to entry are those in which informational advantages are used to block access to real physical assets: pipelines, telephone lines, natural resource reserves, computer hardware; the kinds of resource that cannot be reproduced at low cost⁶.

⁶ The EU's Essential Facilities doctrine can be seen as an example of this kind of reasoning.

All of these four considerations imply that once information exchange is possible over a network, the only way for the authorities to allay concerns about its use for anti-competitive purposes will be to examine issues of *access* and of *ownership*. The regulation of *content* will become an increasingly futile exercise.

Next we turn to the way in which the treatment of information exchange under European competition policy has evolved in recent years.

European Union policy towards information exchange

The Commission's practice on information exchanges dates back a considerable period of time. Its views were first set out in the 1968 Notice on Cooperation Agreements⁷ where the Commission recognised the competitive benefits of transparency in markets which may result from the exchange of information. In the notice, the Commission stated that the "exchange of opinion or experience" and the joint compilation of market research, general industry studies or statistics does not infringe (then) Article 85(1) of the EC Treaty.⁸ However, the Commission emphasised that the participants of such an information exchange system must retain the freedom to independently determine their market behaviour, stating, "if the freedom of action of enterprises is restricted or if their market behaviour is coordinated either expressly or through concerted practices, there may be a restraint of competition."⁹

The 1968 Notice does not give much concrete information. It states that as far as the exchange of information between competitors is concerned, it is difficult to distinguish between information which has no bearing on competition on the one hand and behaviour in restraint of competition on the other. It states, however, two principal points.

First, that it cannot be assumed as a rule that Article 81 does not apply. This means that it is accepted that the mere exchange of information can be a restrictive practice. This is in conformity with the judgment of the ECJ in 1975 in *Suiker Unie*¹⁰. In this case, the Court held that deliberate parallel conduct is not prohibited by Article 81(1). The requirement that players act independently on the market does not deprive operators of their right to adapt themselves intelligently to the existing and anticipated conduct of competitors. However, it does strictly preclude any direct or indirect contact, the object or effect of which is either to influence the conduct on the market of an actual

⁷ [1968] O.J. C75/3.

⁸ *Ibid.* at II 1. Hereafter we will refer to Article 85(1), even in cases which predate Amsterdam, as Article 81(1).

⁹ *Ibid.* See also Commission Decision *X/Open Group* O.J. [1987] L35/36.

¹⁰ 1975 ECR 1663.

competitor or to disclose to such a competitor the course of conduct which the players themselves have decided to adopt on the market. An exchange of information is likely to constitute such contact.

Secondly, the notice made it clear that a restraint of competition may occur in particular on an oligopolistic market for homogeneous products.

In 1978 the Commission elaborated upon its earlier notice in the context of the Seventh Report on Competition Policy¹¹, which established guidelines for the evaluation of the legality of information exchange agreements. These guidelines were based on the approach that the Commission had taken in the cases preceding the report. The Commission expressly acknowledged that not all agreements to exchange information had an adverse effect on competition, and thus they rejected any *per se* rule. The Commission chose instead to follow an *ad hoc* approach, claiming “the distinction [between permissible and impermissible agreements to exchange information] can only be drawn case-by-case, after consideration of the circumstances.”¹²

Despite this non-formalistic approach, the guidelines themselves and the subsequent case law to which they have allegedly been applied, provide us with enough information to try and decipher the Commission’s developing policy on agreements between firms to exchange information.

The 1978 guidelines distinguished between permissible and impermissible agreements to exchange information on the basis of two principal factors:

(i) the structural characteristics of the market upon which the information exchange takes place, and;

(ii) the characteristics and content of the information exchange itself.

The Report emphasises that the problem is mainly one of oligopolistic markets. In an oligopolistic market, greater transparency strengthens the interdependence of firms and reduces the intensity of competition.

Secondly, it makes the distinction between information that is kept between the suppliers only and information that is shared with the customers. In the former case, where the transparency is improved solely for the benefit of suppliers, the customers are deprived of the possibility of taking advantage of the residual ‘hidden competition’.

Thirdly, it makes a distinction between the level of aggregation of the exchanged data. The report states that the Commission does not have objections against the exchange of statistical information, that is information on the production and demand in an industry as usually

¹¹ At paras.5 *et seq.*

¹² *Ibid.*

disseminated by statistical offices. Also the exchange of aggregate information per product per country, which may be more specific, will not be objected to provided it is not possible to distinguish individual company's behaviour from these data. Only the exchange of individual company data – as, for example on prices, sales conditions, sales volumes and output – are supposed to fall within Article 81(1).

The principal concern of the Commission vis-à-vis information exchanges is that the increased market transparency, which they generate and maintain, will reduce or eradicate competitive pressures on the market.¹³ Hence, in the *Cartonboard* decision of 1996, the Commission were concerned that the agreement to exchange information would constitute “a device for facilitating either the coordination of their [the participating undertakings] commercial behaviour or the adoption of a common industry response to market indicators.”¹⁴

The earlier cases in which the Commission was confronted with the exchange of commercially sensitive information concerned cartels where private information sharing between firms was often incidental to distinct collusive agreements. For example, in the *VVVF* case, a trade association functioned as a guise for the exchange of confidential information between the members of the association.¹⁵ Cases were thus brought on the basis of evidence of anti-competitive use of the information exchanged which often pertained to pricing behaviour, such as the exchange of prices, price lists or rebates¹⁶, or where the information exchanged was an element of a more far-reaching agreement to restrict competition, such as quota arrangements, market allocation or price fixing.¹⁷ In this context, information sharing was usually instrumental in the conclusion of the agreement and it was often facilitative in the detection of deviations from the agreement.¹⁸ For instance, in the *Polypropylene*¹⁹ and *Cartonboard*²⁰ cartels, the members participated either directly or through the intermediary of a

¹³ See, for example, para.49 of the Opinion of Advocate General Colomer in Case C-75/95 P, *John Deere Ltd. v. Commission* [1998] ECR I 3111.

¹⁴ *CEPI – Cartonboard* [1996] O.J. C310/3 at para.18.

¹⁵ [1969] O.J. L168/22.

¹⁶ See, for example, *IFTRA Glass Containers* [1974] O.J. L160/1; *Vegetable Parchment* [1978] O.J. L70/54; and *Hasselblad* [1982] O.J. L161/18.

¹⁷ See, for example, *Welded Steel Mesh* [1989] O.J. L260/1, where information exchanged between German Belgian and French producers formed the basis of an agreement for setting import quotas and prices for the French market.

¹⁸ See, for example, *Suiker Unie* [1973] O.J. L140/17; *Cobelpa/VNP* [1977] O.J. L242/10; *White Lead* [1979] O.J. L21/16; *Fatty Acids* [1987] O.J. L 3/17; *Woodpulp* [1985] O.J. L85/1; *Vegetable Parchment, supra*.

¹⁹ [1986] O.J. L230/1.

²⁰ [1994] O.J. L243/1.

third party, in information exchange systems which, *inter alia*, served to monitor compliance with the cartel.

It is fair to say that on a general level the Commission decisions concerning information exchanges which formed part of a wider cartel arrangement provide minimal guidance as to the actual policy which is applied to information sharing agreements at an EC level. However, certain more recent decisions such as *Fatty Acids* and *Woodpulp*, whilst relying on the exchange of information as the key element of a separate collusive agreement, pay increased attention to the lawfulness of the information systems themselves.

The first Commission decision relating to a pure information exchange came in 1992 with *UK Agricultural Tractors Exchange*²¹. This case has particularly important implications for information sharing between firms, because it represents the first time that either the Commission or the Community judicature declared an information exchange incompatible with Article 81(1) solely on the basis of its alleged inherent illegality without, at the same time, establishing the existence of agreed or concerted restriction of competition in respect of prices, quantities or geographical market areas. The Commission decision which was upheld on appeal by both the Court of First Instance²² and the European Court of Justice²³ of the European Communities, who agreed that an information system was anti-competitive on the basis of its potential anti-competitive effects on competition²⁴, that is, without proving a distinct anti-competitive practice by the firms participating in the information exchange.

The *UK Tractors* decision concerned an exchange system which provided information on agricultural tractors registered for road use in the United Kingdom. The members were British manufacturers and importers of tractors. The UK Department of Transport required special forms to be used for the application for registration of a tractor which had to be completed by the manufacturers or importers. The detailed information required included the type and make of the tractor, its serial number, the dealer and the location and identity of the purchaser. At the request of the Agricultural Engineers Association (AEA), the Department of Transport made available these registration documents, the information contained in which was used by the AEA to compile a database for the use of its members. The information con-

²¹ [1992] O.J. L68/19.

²² Case T-34/92 *Fiatagr UK Ltd. and New Holland Ford Ltd. v Commission* [1994] ECR II 905, and Case T-35/92 *John Deere Ltd. v. Commission* [1994] ECR II 957.

²³ Case C-7/95 P, *supra*.

²⁴ See, for example, para. 93 of the Court of First Instance judgment in *Fiatagri* and paras. 61 and 92 of the Court of First Instance judgment in *John Deere* and paras. 75-78 of the judgment of the European Court of Justice.

tained in the database was then disseminated on a weekly and monthly basis.

In its analysis, the Commission found that the UK market for agricultural tractors was characterised by a highly concentrated structure of supply (the four largest suppliers holding 80% of the UK market whilst the market share of all the producers participating in the information exchange was 88%) of a relatively homogeneous product. Moreover, the Commission found that the market was characterised by high barriers to entry, a low volume of sales, a tendency to stagnate due to excess capacity and virtually no competition in price or quality from imports from third countries. After examining the structure of the market, the Commission went on to assess the nature and content of the information exchange itself. The Commission did not object to the availability of aggregate industry data such as the total sales by make, because they did not identify the retail sales of the individual participants of the exchange. Conversely, the Commission did object to the dissemination of even aggregate data if they allowed, either directly or indirectly, the identification of the sales volumes of individual competitors participant in the exchange. With respect to sales data of individual competitors, the Commission found that the dissemination of such information restricted competition within the meaning of Article 81(1). The Commission based its assessment on both the market structure (high concentration of supply, high barriers to entry, absence of significant imports from third countries and a fragmented demand structure) and the nature and content of the information exchange itself (disseminating desegregated data which identified individual firms). On this basis, the Commission concluded that the information exchange agreement inevitably restricts competition “because its creates a degree of market transparency between the suppliers in a highly concentrated market which is likely to destroy what hidden competition [25] there remains between the suppliers on the market on account of the risk and ease of exposure of independent competitive action.”²⁶ The Commission held that the market information contained within the exchange “allows each member and dealer to react immediately and thus to neutralise whatever initiative any one of the members ... of the oligopoly would take to increase sales.”²⁷ The Commis-

²⁵ Defined as “that element of uncertainty and secrecy between the main suppliers regarding market conditions without which none of them has the necessary scope of action to compete efficiently. Uncertainty and secrecy between suppliers is a vital element of competition in this kind of market. Indeed active competition in these market conditions becomes possible only if each competitor can keep his actions secret or even succeeds in misleading his rivals.” At para.37 of the Commission decision.

²⁶ Ibid.

²⁷ At para.40 of the Commission decision.

sion concluded that “the result in practice is that few such initiatives will be taken precisely because every supplier knows very well what the position of each of the others is and that, thanks to the transparency created by the system, any initiative on his part can be detected at once by the others.”²⁸ The decision can be interpreted as the first time that the Commission appeared to adopt a principle of *per se* violation for an information exchange, although this principle was confined to highly concentrated markets.²⁹ The Commission concluded that no allegation or evidence of anti-competitive conduct is necessary because, in its view, the increased transparency necessarily leads to the reduction of competition.

On appeal against the Commission decision, the Court of First Instance acknowledged that on a truly competitive market transparency between traders is, in principle, likely to lead to the intensification of competition between suppliers “since in such a situation the fact that a trader takes into account information made available to him in order to adjust his conduct on the market is not likely, having regard to the atomised nature of supply, to reduce or remove for other traders any uncertainty about the foreseeable nature of its competitors conduct.”³⁰ However, the Court nevertheless agreed with the Commission that in this case “the general use, as between main suppliers, of exchanges of precise information at short intervals ... is, on a highly concentrated oligopolistic market such as the market in question and on which competition is as a result already greatly reduced and exchange of information facilitated, likely to impair considerably the competition which exists between traders.”³¹ The Court concluded that in such a market situation “the sharing, on a regular and frequent basis, of information concerning the operation of the market has the effect of periodically revealing to all competitors the market positions and strategies of the various individual competitors.”³²

There is a very high probability that an information exchange will fall within the prohibition of Article 81(1) where the market structure

²⁸ Ibid.

²⁹ In the press release of the Commission to the *UK Tractors* case, IP (92) 146 of 4 March 1992, the Commission somewhat narrowed the scope of its decision stating that the oligopolistic structure of the UK tractor market could not be compared with the car market, where imports from third countries are an important source of competitive pressure and the heterogeneity of the products is considerably greater. It may then be that the exchange of information on, for example, production, sales or even market shares, although identifying individual firms, does not necessarily infringe Article 81(1) if the exchange is operational in the context of a competitive market for heterogeneous products.

³⁰ Judgment of the Court of First Instance at para.91.

³¹ Ibid.

³² Ibid.

in which it functions is oligopolistic. This is evidenced by the 1968 notice, the 1978 report³³ and the decision in *UK Tractors*. The importance and often decisive influence of the market context is also illustrated by the case of *Eudim*, where the information exchange was accepted by the Commission.³⁴ The market in *Eudim* was highly fragmented with the market shares of the undertakings involved in the exchange remaining between 1.3 and 12%. Moreover, the market was comprised of over a million products and there was considerable buyer power on the demand side. In the light of the market characteristics, the information exchange was allowed. It is interesting to note that although the information exchanged concerned prices, the Commission appeared appeased that the object of the exchange of data on purchase prices was to reduce costs, allowing the exchange participants to compete with other wholesalers who had lower costs.

Several characteristics of the market will be of relevance to the Commission in their assessment of the permissibility of an agreement to exchange information.

The degree of concentration on the market

Obviously, on a concentrated market it will necessarily be easier to individualise data and thus relate it to a single undertaking than on a market with a large number of operators. The Commission appears to have distilled this in to a numerical process of determining the number of undertakings that are active on a market. In *Cartonboard* the Commission appears to have adopted the view that aggregation of at least three producers would be sufficient to prevent identification of general information, with further aggregation being required for particularly sensitive information.³⁵ Conversely, in *Wastepaper*, the Commission issued a notice wherein it was required that a minimum of four undertakings should be aggregated.³⁶ Moreover, in the *UK Tractors* decision, the Commission assessed the information exchange on the basis of the number of units sold, irrespective of whether the units came from one individual or a number of different manufacturers.³⁷

³³ See, in particular para.7; "the Commission also pays close attention to the structure of the relevant market. The tendency for firms to fall in line with the behaviour of their competitors is particularly strong in oligopolistic markets."

³⁴ [1996] O.J. C111/8.

³⁵ *Supra*.

³⁶ European Wastepaper Information Service [1987] O.J. C 339/7.

³⁷ See *infra*, page 8, on the Commission extracting undertakings from the participants of the information exchanges.

Transparency of the market

The more that the market situation itself tends towards transparency or if there are mechanisms on the market which lead to further transparency, the more likely that the information exchange will be interpreted as problematic in the view of the Commission. The position of the Commission vis-à-vis transparency of the market originates in the *Wood Pulp* decision where the Commission held that periodic price announcements made independently by virtually all major undertakings active on the market amounted to an infringement of Article 81(1) due to the increase in market transparency that they created.³⁸ However, on appeal, the Court of Justice held, contrary to the findings of the Commission that, the price announcements “constitute in themselves market behaviour which does not lessen each undertaking’s uncertainty as to the future attitude of its competitors. At the time when each undertaking engages in such behaviour, it cannot be sure of the future conduct of others.”³⁹ Thus the Court seems to restore the principle that mechanisms which create or enhance market transparency will not in themselves, in the absence of other anti-competitive effects, be in breach of competition law.

The product market

The nature of the product market with which the information exchange is concerned will affect the competition analysis that is made. Compare for example the prohibition in the *Cartonboard*⁴⁰ case where only four principal products were involved with the *Eudim*⁴¹ case where the products that formed the subject of the information exchange numbered into the thousands on every national market. The Commission reasons that even if the information exchanged is commercially sensitive, provided it relates to a wide enough spectrum of products it is unlikely to reduce the participant undertakings’ uncertainty regarding the prospective behaviour of their competitors.

The Commission seems to assess information exchanges and the product markets with which they are concerned on the basis of the ease of individualising the constituent data; the lower the number of participant undertakings, the higher concentration of the market and the more homogeneous a product, the easier it will be to individualise and attribute vital statistics relating to price, sales and market share and the more likely the exchange will be prohibited by Article 81(1).

³⁸ *Wood Pulp*, supra.

³⁹ Case C-114/85 *Ahlstrom Oy and others v. Commission* [1993] ECR I 1307.

⁴⁰ *Supra*.

⁴¹ *Supra*.

The characteristics and the content of the information exchange

In addition to the market context in which the information exchange takes place, the assessment of the information exchange will be dependent on the structure of the information exchange itself and the nature of the information exchanged.

Content – the type of information exchanged

It appears from the case law that information which raises competitive concerns when exchanged can range from direct price information⁴² to information regarding proposed investments.⁴³ It is by no means a prerequisite that the information exchanged has to be confidential, but if the information is publicly available but difficult either to obtain or compile, it may be equated with confidential information.⁴⁴

The diversity of the types of information exchanges that have been condemned, combined with the fact that the type of information is only one, generally poorly documented, element of the Commission's assessment means that it is difficult to decipher clear patterns in this field. However, what is clear is that information regarding prices will be virtually impossible to exchange. Thus, as early as 1977, the Commission found that it is contrary to the provisions of Article 81(1) "for a producer to communicate to his competitors the essential elements of his price policy, such as price lists, the documents and term of trade he applies, the rates and date of any change to them and the special exceptions he grants to any customers."⁴⁵ In *Hasselblad*⁴⁶ and *Vegetable Parchment*⁴⁷ the exchange of price information between competitors was held to be anti-competitive, as was the exchange of price lists in *Vimpoltu*⁴⁸ and *International Association of Paper Machine Wire Manufacturers*.⁴⁹ In fact, the only cases where the exchange of sales price data has been accepted is when it is in aggregate form or when it is historic in nature.⁵⁰

⁴² See, for example, *IFTRA Glass Containers*, supra.

⁴³ See *Building and Construction in the Netherlands* [1992] O.J. L 92/1.

⁴⁴ See, for example *UK Tractors* at para.49 and the Commission decision in *Ciment* [1994] O.J. L 343/1.

⁴⁵ *Cobelpa/VNP*, supra. See also *IFTRA Glass Containers*, supra.

⁴⁶ *Supra*.

⁴⁷ *Supra*.

⁴⁸ [1983] O.J. L 200/44.

⁴⁹ See the VIth Report on Competition Policy, 1976.

⁵⁰ See *European Waste Paper Information Service*, supra at para.7.

Exchanges of information which do not focus on price have also been held to be anti-competitive by the Commission. For example, the exchange of information concerning production and sales figures was prohibited in *Peroxygen Products*⁵¹; an information exchange between competitors regarding a bidding procedure in *Building and Construction in the Netherlands*⁵² was held to infringe Article 81(1); and the exchange of general business information was prohibited in *SCPA Kali and Salz*.⁵³

Generally it can be stated that the more aggregate the data that are contained in the information exchange, the less likely it is to be prohibited by the Commission. As the Commission itself stated in *Cartonboard*⁵⁴ "the policy of the Commission is in general not to object to the exchange by trade associations of aggregate data which do not reveal to competitors individual market positions."⁵⁵ As a corollary, the Commission will prohibit the exchange of information which is sufficiently detailed to allow the identification of the performance of individual undertakings on the market.⁵⁶

Exchanges of information, even if individualised and related to anti-trust sensitive areas may however be permissible provided that the time period to which the data relates is such that the information can no longer have a significant impact on the exchange or market participants. The Commission's method of determining what is or is not historic data for this purpose is not formulistic, appearing to take place on a case-by-case basis. In *UK Tractors* the exchange of one-year-old highly detailed individualised data was held to be permissible, the determinative factor for the Commission appearing to be the age of the information.⁵⁷ Conversely, in the *Cartonboard* case⁵⁸ aggregated data showing the four weeks preceding the dissemination was considered historic.⁵⁹

The exchange of current information, that is information which can be used to determine an undertaking's commercial behaviour at the time of the exchange, is more likely to be prohibited if it facilitates the

⁵¹ [1985] O.J. L 35/1.

⁵² *Supra*.

⁵³ [1973] O.J. L217/3.

⁵⁴ *Supra*.

⁵⁵ *Ibid.* at para.16.

⁵⁶ See, for example *Vegetable Parchment*, *supra*.

⁵⁷ *Supra* at para.50.

⁵⁸ *Supra*.

⁵⁹ It should, however be noted that even the exchange of completely historic information may fall within Article 81(1) if it is ancillary to wider anti-competitive practices. See *Fatty Acids*, *supra* at para.36.

easy identification of the performance of individual undertakings. The extent to which the exchange of forecasts of future market conditions or behaviour is permissible will depend on the generality of the information; detailed price forecasts will normally be prohibited.

Characteristics – the nature of the information exchange

Although far from clear in the decisions, an influential factor as to the acceptability of an information exchange is the frequency with which the information is exchanged. The more frequently information is exchanged the easier it is to assess market developments and, consequently, respond swiftly and appropriately to them.⁶⁰ The slower the frequency of the exchange of information, the more limited the scope for the useful commercial exploitation of the information.

The actual structure of the functioning of the information exchange is also determinative of whether it will fall within the prohibition of Article 81(1). For example, it may be difficult for the Commission to mount a successful case against an information exchanged which is compiled and disseminated by a third party who is not in competition with the undertakings to which the data relate and who is not in concertation and has no agreement with the same.

The possibility of exemption under Article 81(3)

To come within the scope of Article 81(3), whether as an individual or block exemption, the information exchange has to contribute to improving the production or distribution of goods or to promoting technical progress while allowing consumers a fair share of the benefit. Information agreements that have not been exempted by the Commission include those to exchange confidential market information on price⁶¹, on sales and production figures and market share⁶² and on bidding procedures.⁶³ The information exchange agreements that have been granted exemption by the Commission are those which at least have the potential to facilitate innovation and which may ultimately benefit consumers. For example, in *X/Open Group*⁶⁴, the Commission exempted an agreement between software producers and AT&T to exchange technical and market information to develop an open industry standard. According to the Commission the agreement enhanced

⁶⁰ See the Commission decision in *UK Tractors*, supra at para.42 and para.49 of the Opinion of Advocate General Colomer in *John Deere v. Commission*, supra.

⁶¹ See, for example, *Cobelpa*, supra, *IFTRA Glass Containers*, supra.

⁶² *UK Tractors*, supra.

⁶³ *Building and Construction in the Netherlands*, supra.

⁶⁴ *Supra*.

rather than restricted competition since it allowed consumers to combine hardware and software from different suppliers.⁶⁵

On September 20th, 1999, the Commission finally approved a new system for the exchange of information in the *Tractors* saga. Following the upholding of its decision by the Court of Justice in 1998⁶⁶, the Commission decided to scrutinise all of the similar exchanges of EU producers and associations, knowing that the concentration in the sector is pronounced. Following a year-long investigation the Commission has extracted undertakings from the associations in several Member States (including the UK, France, Germany, Italy, Spain, Denmark and Belgium) not to exchange individual data until they are a year old and only to exchange aggregate data, which may be more current, if supplied by at least three dealers affiliated to different industrial or financial groupings or, if there are fewer than three dealers, if the figure being exchanged concerns more than ten tractor units. The Commission has not exempted the agreements but has instead sent comfort letters to the fourteen national associations who have undertaken to operate the exchanges in accordance with the undertakings.

As a final point, it is interesting to note that in the context of the initial discussions on the new Commission Guidelines on Horizontal Cooperation agreements, it was envisaged that agreements between competitors to exchange information should be covered. The absence of such coverage in the final draft version of the Guidelines may represent the Commission shying away from tackling the subject and is indeed testimony to the complexity and diversity of the competition law and policy issues involved in this area of commercial co-operation.

Concluding remarks

The evolution of the EU's policy on information exchange represents in many ways a remarkable adaptation to the circumstances of industrial competition of a few years ago, and one that is fairly close to what a reasonable scientific consensus might recommend for such a world. The Commission's new system for tractors embodies much of the wisdom of the Kühn-Vives view. But the world is changing very rapidly, and the circumstances to which the Commission has adapted are out of date almost as soon as the adaptation has been made. In this paper we have made five main claims:

1. Most important networks involve relations of substitution and complementarity, meaning that it is very rare to find circumstances in

⁶⁵ See also *Ford/Volkswagen* [1993] O.J. L20/14.

⁶⁶ See *John Deere v. Commission*, *supra*.

which one can conclude that cooperation or the exchange of information between network members is unambiguously harmful or unambiguously beneficial.

2. The dramatic fall in the costs of information transmission, manipulation and exchange in recent years make it both impractical and undesirable to distinguish between “good” and “bad” information exchanges on the basis of the *content* of the information exchanged.

The value of information for market transparency means that it is more important for competition authorities to increase access to information shared by a few than to restrict the ability of those few to share it in the first place.

The potential of specific mechanisms (such as websites) to distort competition depends much more on who owns the site and its associated activities, and on who has access to various parts of the site, than on the information contained in the site as such.

European competition policy has some way to go to catch up with these developments. That is not a criticism. We all do.

References

Braunerhjelm, P., R. Faini, F. Ruane & P. Seabright (2000): *Integration and the Regions of Europe: how the right policies can prevent polarisation*, Monitoring European Integration report no. 10, Centre for Economic Policy Research.

Economides, N. (1996): “The Economics of Networks”, *International Journal of Industrial Organization*.

Kühn, K-U. & X. Vives (1995) :“Information Exchanges among Firms and the Impact on Competition”, report to the European Commission.

Vives, X. (1999): *Oligopoly Pricing: old ideas and new tools*, MIT Press.

6 Fighting cartels: The legal meaning of conspiracy

Richard Whish

The policy of Article 81 is to prohibit co-operation between independent undertakings, which prevents, restricts or distorts competition: in particular it is concerned with the eradication of cartels and “hard-core” restrictions of competition. The application of Article 81(1) is not limited to legally enforceable agreements: this would make evasion of the law simple. Article 81 applies also to co-operation achieved through the decisions of trade associations or more informal understandings, known as concerted practices. The Chapter I prohibition in the UK Competition Act 1998 has the same scope. A broad interpretation has been given to each of the terms “agreement”, “decision” and “concerted practice”. A difficult issue is whether parallel behaviour by firms in an oligopolistic industry is attributable to an agreement or concerted practice between them, in which case Article 81(1) would be applicable; or whether it is a natural effect of the structure of the market, in which case a different competition law response might be needed. In several decisions, particularly in the context of distribution systems, conduct which appeared to be unilateral has been held to be sufficiently consensual to fall within Article 81(1)¹.

(A) Agreements

(i) *Examples of agreements*

A legally enforceable contract of course qualifies as an agreement, including a compromise of litigation such as a trade mark delimitation agreement² or the settlement of a patent action³. “Gentleman's agree-

¹ See below.

² See eg *Re Penney's Trade Mark* OJ [1978] L 60/19, [1978] 2 CMLR 100; *Re Toltecs and Dorcet* OJ [1982] L 379/19, [1983] 1 CMLR 412, upheld on appeal, Case 35/83 *BAT v Commission* [1985] ECR 363, [1985] 2 CMLR 470; it is not entirely clear what effect embodiment of the compromise in an order of a national court has on the applicability of Article 81(1): see Case 258/78 LC *Nungesser KG v Commission* [1982] ECR 2015, [1983] 1 CMLR 278, paras 80-91 where the ECJ was delphic on this issue; the tenor of the ECJ's judgement in *BAT v Commission* would suggest that the agreement would be caught even where sanctioned by a national court.

³ See eg Case 65/86 *Bayer v Süllhöfer* [1988] ECR 5249, [1990] 4 CMLR 182.

ments”⁴ and simple understandings⁵ have been held to be agreements, though neither is legally binding; there is no requirement that an agreement should be supported by enforcement procedures⁶. A “protocol” which reflects a genuine concurrence of will between the parties constitutes an agreement within the meaning of Article 81(1)⁷. Connected agreements may be treated as a single one⁸. An agreement may be oral⁹. The Commission will treat the contractual terms and conditions in a standard-form contract as an agreement within Article 81(1)¹⁰. An agreement which has expired by effluxion of time but whose effects continue to be felt can be caught by Article 81(1)¹¹. The constitution of a trade association qualifies as an agreement within Article 81¹². An agreement entered into by a trade association might be construed as an agreement on the part of its members¹³. An agreement to create a European Economic Interest Grouping (EEIG) or the bye-laws establishing it may be caught by Article 81(1)¹⁴. There may be “inchoate understandings and conditional or partial agreement” during a bargaining process sufficient to amount to an agreement in the sense of Article 81(1)¹⁵. The fact that formal agreement has not been reached on all matters does not preclude a finding of an agree-

⁴ Cases 41/69 *ACF Chemiefarma NV v Commission* [1970] ECR 661.

⁵ *Re Stichting Sigarettenindustrie Agreements* OJ [1982] L 232/1, [1982] 3 CMLR 702 (an “understanding” between trade associations held to be an agreement); *National Panasonic* OJ [1982] L 354/28, [1983] 1 CMLR 497 (where there was no formal agreement between Panasonic and its dealers, but the Commission still held that there was an agreement as opposed to a concerted practice between them); *Viho/Toshiba* OJ [1991] L 287/39, [1992] 5 CMLR 180 (the Commission found an understanding between Toshiba’s German subsidiary and certain distributors that an export prohibition should apply even though the standard distribution agreements had been amended to remove an export prohibition clause).

⁶ *Soda-ash/Solvay, CFK* OJ [1991] L 152/16, [1994] 4 CMLR 645, para 11; *PVC* OJ [1994] L 239/14, para 30.

⁷ *HOV SVZ/MCN* OJ [1994] L 104/34, para 46.

⁸ *ENI/Montedison* OJ [1987] L 5/13, [1988] 4 CMLR 444.

⁹ Case 28/77 *Tepea v Commission* [1978] ECR 1391, [1978] 3 CMLR 392; *National Panasonic* OJ [1982] L 354/28, [1983] 1 CMLR 497.

¹⁰ *Putz v Kawasaki Motors (UK) Ltd* OJ [1979] L 16/9, [1979] 1 CMLR 448; *Sandoz* OJ [1987] L 222/28, [1989] 4 CMLR 628, upheld on appeal Case 277/87 *Sandoz Prodotti Farmaceutici SpA v Commission* [1990] ECR I-45.

¹¹ Case T-7/89 *SA Hercules NV v Commission* [1991] ECR II-1711, [1992] 4 CMLR 84, para 257; Case 51/75 *EMI Records Ltd v CBS United Kingdom Ltd* [1976] ECR 811, pp 848-849, [1976] 2 CMLR 235, p 267.

¹² *Re Nuovo CEGAM* OJ [1984] L 99/29, [1984] 2 CMLR 484

¹³ Cases 209/78 etc *Heintz Van Landewyck v Commission* [1980] ECR 3125, [1981] 3 CMLR 134.

¹⁴ *Orphe* (Commission’s XXth Report on Competition Policy, point 102); *Tepar* [1991] 4 CMLR 860; *Twinning Programme Engineering Group* OJ [1992] C 148/8, [1992] 5 CMLR 93.

¹⁵ *Pre-Insulated Pipe Cartel* OJ [1999] L 24/1, [1999] 4 CMLR 402, para 133, on appeal Cases T-9/99 etc *HFB Holding v Commission* (judgement pending).

ment¹⁶. Where an agreement is entered into unwillingly, this may be significant in influencing the Commission to mitigate a fine¹⁷, not to impose a fine¹⁸ or not to institute proceedings at all. The Commission may abstain from fining parties which had no input in the drafting of the agreements into which they have entered¹⁹.

(ii) *Complex cartels*

Many cartels are complex and of long duration. Over a period of time, some firms may be more active than others in the running of a cartel; some may “drop out” for a while but subsequently re-enter; others may attend meetings or communicate in other ways in order to be kept informed, without necessarily intending to fall in line with the agreed plan; there may be few occasions on which all the members of the cartel actually meet or behave precisely in concert with one another. This presents a problem for a competition authority; where the shape and active membership of a cartel changes over a period of time, must the authority prove a series of discrete agreements or concerted practices, and identify each of the parties to each of those agreements and concerted practices? This would require a considerable amount of evidence and impose a very high burden on the competition authority; it might also mean that it would not be possible to impose fines in relation to old agreements and concerted practices in relation to which infringement proceedings had become time-barred²⁰. The Commission, upheld by the Community Courts, has addressed these problems in two ways: first, by developing the idea that it is not necessary to characterise infringements of Article 81(1) specifically as an agreement on the one hand or a concerted practice on the other; and secondly by establishing the concept of a “single overall agreement” for which all members of a cartel bear responsibility, irrespective of their precise involvement from day to day.

(A) AGREEMENT “AND/OR” CONCERTED PRACTICE. The Commission has stated that agreements and concerted practices are con-

¹⁶ Ibid, para 134.

¹⁷ *Hasselblad* OJ [1982] L 161/18, [1982] 2 CMLR 233; *Wood Pulp* OJ [1985] L 85/1, [1985] 3 CMLR 474, para 131.

¹⁸ *Burns Tractors Ltd v Sperry New Holland* OJ [1985] L 376/21, [1988] 4 CMLR 306; *Fisher-Price/Quaker Oats Ltd-Toyco* OJ [1988] L 49/19, [1989] 4 CMLR 553.

¹⁹ *Viho/Toshiba* OJ [1991] OJ L 287/39, [1992] 5 CMLR 180, para 26. Guidance on the Commission’s fining policy can be found in two Commission notices, *Notice on the non-imposition of fines in cartel cases* OJ [1996] C 207/4, [1996] 5 CMLR 362 and *Notice on the method of setting fines* OJ [1998] C 9/3, [1998] 4 CMLR 472.

²⁰ Under Regulation 2988/74 the Commission cannot impose fines in relation to an infringement that ended five years or more previously: see Kerse *EC Antitrust Procedure* (4th edition, 1998, Sweet and Maxwell) paras 7.47-7.49.

ceptually distinct²¹. However Advocate General Reischl has said that there is little point in defining the exact point at which agreement ends and concerted practice begins²². It may be that in a particular case linguistically it is more natural to use one term than the other, but legally nothing turns on the distinction: the important distinction is between collusive and non-collusive behaviour²³. Where the Commission is satisfied that the parties are guilty of a concerted practice, it does not consider it necessary also to determine whether they are party to an express or tacit agreement²⁴. In some decisions the Commission has said simply that co-operation between undertakings amounted to an agreement or at least a concerted practice, without actually deciding which²⁵. In the *PVC*²⁶ decision, the Commission reached the conclusion that the parties to the cartel had participated in an agreement “and/or” a concerted practice. On appeal to the CFI, Enichem argued that the Commission was not entitled to have made this “joint classification”, which would be lawful only if it could prove the existence of both an agreement and a concerted practice. In its judgment the CFI rejected this argument and upheld the Commission²⁷. It said that:

In the context of a complex infringement which involves many producers seeking over a number of years to regulate the market between them the Commission cannot be expected to classify the infringement precisely, for each undertaking and for any given moment, as in any event both those forms of infringement are covered by Article [81] of the Treaty.

The CFI went on to say that joint classification was permissible where the infringement includes elements both of an agreement and of a concerted practice, without the Commission having to prove that there was both an agreement and a concerted practice throughout the period of the infringement. The Commission adopted a joint classification

²¹ See *Polypropylene* OJ [1986] L 230/1, [1988] 4 CMLR 347, para 86.

²² See Cases 209/78 etc *Van Landewyck v Commission* [1980] ECR 3125, p 3310, [1981] 3 CMLR 134, p 185.

²³ *Polypropylene* OJ [1986] L 230/1, [1988] 4 CMLR 347, para 87, on appeal Case T-7/89 *SA Hercules NV v Commission* [1992] ECR II-1711, [1992] 4 CMLR 84 upheld on appeal to the ECJ Case C-51/92P *Hercules Chemicals v Commission* [1999] 5 CMLR 976; *Soda-ash/Solvay, ICI* OJ [1991] L 152/1, para 55.

²⁴ *Soda-ash/Solvay, ICI* OJ [1991] L 152/1, [1994] 4 CMLR 645, para 55.

²⁵ See eg *Re Floral* OJ [1980] L 39/51, [1980] 2 CMLR 285.

²⁶ OJ [1994] L 239/14; this decision was taken by the Commission after its earlier decision, OJ [1989] L 74/1, had been annulled by the ECJ for infringement of essential procedural requirements: Case 137/92P *Commission v BASF* (1994) ECR I-2555.

²⁷ Cases T-305/94 etc *NV Limburgse Vinyl Maatschappij v Commission* [1999] 5 CMLR 303, paras 695-699; ICI has appealed to the ECJ, Case C-254/99P *ICI v Commission* (grounds of appeal OJ [1999] C 352/17, judgement pending); the CFI had noted the possibility of a joint classification in its earlier judgements in the *Polypropylene* case: see eg Case T-8/89 *DSM v Commission* [1991] ECR II-1833, paras 234-235.

approach in *British Sugar*²⁸, stating at paragraph 70 of its decision that:

The Court of First Instance in various judgments made it clear that it was not necessary, particularly in the case of a complex infringement of considerable duration, for the Commission to characterise it as exclusively an agreement or concerted practice, or to split it up into separate infringements. Indeed, it might not even be feasible or realistic to make any such distinctions, as the infringement as a whole might present characteristics of both types of prohibited conduct, while considered in isolation some of its manifestations could more accurately be described as one rather than the other. In particular, it would be artificial to subdivide continuous conduct, having one and the same overall objective, into several discrete infringements. The Court of First Instance in its judgments therefore endorsed the Commission's dual characterisation of the single infringement as an agreement and a concerted practice, and stated that this had to be understood, not as requiring, simultaneously and cumulatively, proof that each of the factual elements contained in the continuous conduct presented the constituent elements both of an agreement and of a concerted practice, but rather as referring to a complex whole which comprised a number of factual elements some of which in isolation would be characterised as agreements whereas others would be considered concerted practices.

The same approach can be found in *Cartonboard*²⁹ and in *Pre-Insulated Pipe Carte*³⁰.

(B) THE CONCEPT OF A "SINGLE, OVERALL AGREEMENT". In a series of decisions from the mid-1980's the Commission has developed the concept of a "single, overall agreement" for which undertakings bear responsibility, even though they may not be involved in its operation on a continuing basis. For example, in *Polypropylene*³¹ the Commission investigated a complex cartel agreement in the petrochemicals sector involving 15 firms over many years. It held that the detailed arrangements whereby the cartel operated were all part of a single, overall agreement: this agreement was oral, not legally binding, and there were no sanctions for its enforcement. Having established that there was a single agreement, the Commission was able to hold that all 15 firms were guilty of infringing Article 81, even though some had not attended every meeting of the cartel and had not been involved in every aspect of its decision-making: participation in the overall agreement was sufficient to establish guilt. Furthermore, the fact that some members of the cartel had reservations about whether to participate –

²⁸ OJ [1999] L 76/1, [1999] 4 CMLR 1316, on appeal Cases T-202/98 etc *Tate & Lyle v Commission* (judgement pending).

²⁹ OJ [1994] L 243/1, [1994] 5 CMLR 547, para 128.

³⁰ OJ [1999] L 24/1, [1999] 5 CMLR 402, paras 131-132, on appeal Cases T-9/99 etc *HFB Holding v Commission* (judgement pending).

³¹ OJ [1986] L 230/1, [1988] 4 CMLR 347.

or indeed intended to cheat by deviating from the agreed conduct – did not mean that they were not party to an agreement. The Commission reached similar conclusions in *PVC*³², *LdPE*³³ and in its second decision on *PVC*³⁴. The CFI in *PVC* upheld the Commission's view that an undertaking can be held responsible for an overall cartel even though it participated in only one or some of its constituent elements “if it is shown that it knew, or must have known, that the collusion in which it participated ... was part of an overall plan intended to distort competition and that the overall plan included all the constituent elements of the cartel”³⁵. In *Tréfileurope v Commission*³⁶, one of the appeals in the *Welded Steel Mesh* case, the CFI held that the fact that an undertaking does not abide by the outcome of meetings which have a manifestly anti-competitive purpose does not relieve it of full responsibility for its participation in the cartel, if it has not publicly distanced itself from what was agreed in the meetings; this was repeated in *BPB de Eendracht NV v Commission*³⁷, an appeal in the *Cartonboard* case.

In *Steel Beams*³⁸ the CFI held that attendance by an undertaking at meetings involving anticompetitive activities suffices to establish its participation in those activities in the absence of proof capable of establishing the contrary³⁹.

The cumulative effect of these judgments must be beneficial to the Commission in its cartel policy, since the Community Courts seem to have deliberately refrained from construing the expressions agreement and concerted practice in a legalistic or formalistic manner: what emerges, essentially, is that any contact between competitors that touches upon business behaviour such as pricing, markets, customers and volume of output is risky in the extreme.

(B) Decisions by associations of undertakings

Co-ordination between independent undertakings may be achieved through the medium of a trade association, and this is explicitly recognised in Article 81(1) by the proscription of decisions by trade associations which might restrict competition. The application of Article 81(1)

³² OJ [1989] L 74/1, [1990] 4 CMLR 345.

³³ OJ [1989] L 74/21, [1990] 4 CMLR 382, paras 49-54.

³⁴ OJ [1994] L 239/14, paras 30-31

³⁵ Cases T-305/94 etc *NV Limburgse Vinyl Maatschappij v Commission* [1999] 5 CMLR 303, para 773.

³⁶ Case T-141/89 [1995] ECR II-791, para 85.

³⁷ Case T-311/94 [1998] ECR II-1129, para 203.

³⁸ Cases T-141/94 etc *Thyssen Stahl and others v Commission* [1999] 4 CMLR 810.

³⁹ Case T-141/94 [1999] 4 CMLR 810, para 177; applying Case T-14/89 *Montedipe v Commission* [1992] ECR II-1155, [1993] 4 CMLR 110.

to decisions means that the trade association itself may be held liable and be fined⁴⁰. It has been held that the constitution of a trade association is itself a decision⁴¹, as well as regulations governing the operation of an association⁴². An agreement entered into by the association might also be a decision. A recommendation made by an association has been held to amount to a decision, and it has been clearly established that the fact that the recommendation is not binding upon its members does not prevent the application of Article 81(1)⁴³. In such cases it is necessary to consider whether members in the past have tended to comply with recommendations that have been made, and whether compliance with the recommendation would have a significant influence on competition within the relevant market. In *IAZ International Belgium NV v Commission*⁴⁴ an association of water-supply undertakings recommended its members not to connect dish-washing machines to the mains system which did not have a conformity label supplied by a Belgian association of producers of such equipment. The ECJ confirmed the Commission's view that this recommendation, though not binding, could restrict competition since its effect to discriminate against appliances produced elsewhere in the EC. Regulations made by a trade association may amount to a decision within the meaning of Article 81(1)⁴⁵.

A decision does not acquire immunity because it is subsequently approved and extended in scope by a public authority⁴⁶, nor does a trade association fall outside Article 81(1) because it is given statutory functions or because its members are appointed by the Government⁴⁷. The

⁴⁰ See eg *AROW v BNIC* OJ [1982] L 379/1, [1983] 2 CMLR 240 where BNIC was fined EUR 160,000; *Fenex* OJ [1996] L 181/28, [1996] 5 CMLR 332 where Fenex was fined EUR 1000.

⁴¹ See eg *Re ASPA* JO [1970] L 148/9, [1970] CMLR D25; *National Sulphuric Acid Association* OJ [1980] L 260/24, [1980] 3 CMLR 429.

⁴² *Sippa* OJ [1991] L 60/19; *Coapi* [1995] 5 CMLR 468, OJ [1995] L 122/37, para 34.

⁴³ Case 8/72 *Vereeniging van Cementhandelaren v Commission* [1972] ECR 977, [1973] CMLR 7; Case 71/74 *FRUBO v Commission* [1975] ECR 563, [1975] 2 CMLR 123; Cases 209/78 etc *Van Landewyck v Commission* [1980] ECR 3125, [1981] 3 CMLR 134; Case 45/85 *VDS v Commission* [1987] ECR 405, [1988] 4 CMLR 264, para 32; see also *Distribution of railway tickets by travel agents* OJ [1992] L 366/47, paras 62-69, partially annulled on appeal Case T-14/93 *UIC v Commission* [1995] ECR II-1503, [1996] 5 CMLR 40; *Fenex* OJ [1996] L 181/28, [1996] 5 CMLR 332, paras 32-42.

⁴⁴ Cases 96/82 etc [1983] ECR 3369, [1984] 3 CMLR 276.

⁴⁵ *Re Acier* JO [1970] L 153/14, [1970] CMLR D31; *Publishers' Association - Net Book Agreements* OJ [1989] L 22/12, [1989] 4 CMLR 825, upheld on appeal Case T-66/89 *Publishers Association v Commission (No 2)* [1992] ECR II-1995, [1992] 5 CMLR 120, partially annulled on appeal to the ECJ Case C-360/92P *Publishers Association v Commission* [1995] ECR I-23, [1995] 5 CMLR 33.

⁴⁶ *AROW v BNIC* OJ [1982] L 379/1, [1983] 2 CMLR 240; *Coapi* OJ [1995] L 122/37, [1995] 5 CMLR 468, para 32.

⁴⁷ *Ibid* and *Pabst and Richarz KG v BNIA* OJ [1976] L 231/24, [1976] 2 CMLR D63.

ECJ has specifically stated that the public law status of a national body (for example an association of customs agents) does not preclude the application of Article 81⁴⁸. Article 81(1) also applies to decisions by associations of trade associations⁴⁹. It may be that a trade association is not itself an undertaking, but is an association of undertakings, so that Article 81(1) would be applicable to its decisions, if not to its agreements.

(C) Concerted practices

The inclusion of concerted practices within the proscription of Article 81 means that conduct which is not attributable to an agreement or a decision may nevertheless infringe Article 81(1). While it can readily be appreciated that loose, informal understandings to limit competition must be prevented as well as agreements, it is difficult both to define the type or degree of co-ordination within the mischief of the law and to apply that rule to the facts of any given case. In particular there is the problem that parties to a cartel may do all they can to destroy incriminating evidence of meetings, e-mails and correspondence, in which case the temptation of the competition authority will be to infer the existence of an agreement or concerted practice from circumstantial evidence such as parallel conduct on the market. This can be dangerous, for it may be that firms act in parallel not because of an agreement or concerted practice but because their individual appreciation of market conditions tells them that a failure to match a rival's strategy could be damaging or even disastrous. The application of the law in this area is complex and competition authorities must proceed with care in order to distinguish covert cartels from rational and innocent commercial activities.

It is necessary to consider first the legal meaning of a concerted practice; secondly the question of whether a concerted practice must have been put into effect for Article 81(1) to have been infringed; and lastly the burden of proof and the rôle of economic analysis.

(i) *Meaning of concerted practice*⁵⁰

*ICI v Commission*⁵¹ (usually referred to as the *Dyestuffs* case) was the first important case on concerted practices to come before the ECJ. The Commission had fined several producers of dyestuffs, which it

⁴⁸ Case C-35/96 *Commission v Italy* [1998] ECR I-3851, [1998] 5 CMLR 889, para 40.

⁴⁹ See eg *Cematex* OJ [1971] L 227/26, [1973] CMLR D135 and *Milchförderungsfonds* OJ [1985] L 35/35, [1985] 3 CMLR 101.

⁵⁰ See Black "Communication and Obligation in Arrangements and Concerted Practices" (1992) 13 ECLR 200.

⁵¹ Case 48/69 [1972] ECR 619, [1972] CMLR 557.

considered had been guilty of price fixing through concerted practices⁵². Its decision relied upon various pieces of evidence, including the similarity of the rate and timing of price increases and of instructions sent out by parent companies to their subsidiaries and the fact that there had been informal contact between the firms concerned. The ECJ upheld the Commission. It said that the object of bringing concerted practices within Article 81 was to prohibit:

“a form of co-ordination between undertakings which, without having reached the stage where an agreement properly so-called has been concluded, knowingly substitutes practical co-operation between them for the risks of competition”⁵³.

In *Suiker Unie v Commission*⁵⁴ the ECJ elaborated upon this test. The Commission had held⁵⁵ that various sugar producers had taken part in concerted practices to protect the position of two Dutch producers on their domestic market. The producers denied this, as they had not worked out a plan to this effect. The ECJ held that it was not necessary to prove that there was an actual plan. Article 81 strictly precluded:

“any direct or indirect contact between such operators, the object or effect whereof is either to influence the conduct on the market of an actual or potential competitor or to disclose to such a competitor the course of conduct which they themselves have decided to adopt or contemplate adopting on the market”⁵⁶.

These two cases provide the legal test of what constitutes a concerted practice for the purposes of Article 81: there must be a mental consensus whereby practical co-operation is *knowingly* substituted for competition, but the consensus need not be achieved verbally and can come about by any direct or indirect contact between the parties. In *Züchner v Bayerische Vereinsbank AG*⁵⁷ the ECJ quoted both of these extracts when repeating the test of a concerted practice. In *Polypropylene*⁵⁸, *PVC*⁵⁹, and *LdPE*⁶⁰ the Commission stressed that a concerted practice did not require proof of a plan and it is notable that in *LdPE BP*, *Montanto* and *Shell* were held to be parties to a concerted practice even

⁵² *Re Aniline Dyes Cartel* OJ [1969] L 195/11, [1969] CMLR D 23.

⁵³ [1972] ECR 619, [1972] CMLR 557, para 64.

⁵⁴ Cases 40/73 etc [1975] ECR 1663, [1976] 1 CMLR 295.

⁵⁵ *Re European Sugar Cartel* OJ [1973] L 140/17, [1973] CMLR D 65.

⁵⁶ [1975] ECR 1663, p 1942, [1976] 1 CMLR 295, p 425.

⁵⁷ Case 172/80 [1981] ECR 2021, [1982] 1 CMLR 313.

⁵⁸ OJ [1986] L 230/1, [1988] 4 CMLR 347.

⁵⁹ OJ [1989] L 74/1, [1990] 4 CMLR 345.

⁶⁰ OJ [1989] L 74/21, [1990] 4 CMLR 382, paras 49-54.

though they were on the “periphery” of the cartel⁶¹. In *Sodasash/Solvay*⁶² the Commission pointed out that it would be unlikely, given the well-known legal risks under Article 81(1), that one would find a written record of an illegal resolution but said:

There are many forms and degrees of collusion and it does not require the making of a formal agreement. An infringement of Article 81 may well exist where the parties have not even spelled out an agreement in terms but each infers commitment from the other on the basis of conduct.⁶³

(ii) *Must a concerted practice have been put into effect?*

The judgment of the ECJ in the *Polypropylene*⁶⁴ cases deals with the question whether a concerted practice must have been put into effect in order for there to be an infringement of Article 81(1). If the answer to this is no, it would follow, for example, that if competitors were “merely” to meet or to exchange information, without actually producing any effects on the market by doing so, this would not amount to a concerted practice; the Commission would therefore have to prove there to be an agreement, the object or effect of which is to restrict competition. The Commission has been keen not to allow there to be legalistic distinctions between the treatment of agreements and concerted practices in Article 81(1), and has received the support of the Community Courts in this endeavour⁶⁵. The ECJ held in *Hüls*, one of the *Polypropylene* cases, that “a concerted practice... is caught by Article 81(1) EC, even in the absence of anti-competitive effects on the market”⁶⁶. In reaching this conclusion, the ECJ stated that, as established by its own case law⁶⁷, Article 81(1) requires that each economic operator must determine its policy on the market independently. At paragraph 161, it acknowledged that the concept of a concerted practice implies that there will be common conduct on the market, but added that there must be a presumption that, by making contact with one another, such conduct will follow: the ECJ must be saying that, because of this presumption, the Commission does not have to go fur-

⁶¹ Ibid, para 41.

⁶² OJ [1991] L 152/1.

⁶³ Ibid, para 59.

⁶⁴ Cases C-51/92P etc *Hercules Chemicals NV v Commission* [1999] 5 CMLR 976.

⁶⁵ See above on complex cartels.

⁶⁶ Case C-199/92P etc *Hüls v Commission* [1999] 5 CMLR 1016, para 163; see similarly the CFI in Cases T-141/94 etc *Thyssen Stahl and other v Commission* [1999] 4 CMLR 810, paras 269-272, dealing in this case with Article 65(1) ECSC.

⁶⁷ Cases 40/73 etc *Suiker Unie v Commission* [1975] ECR 1663, [1976] 1 CMLR 296, para 73; Case 172/80 *Züchner* [1981] ECR 2021, [1982] 1 CMLR 313, para 13; Cases 89/85 etc *Ahlström v Commission* [1993] ECR I-1307, [1993] 4 CMLR 407, para 63; Case C-7/95 P *John Deere v Commission* [1998] ECR I-1311, [1998] 5 CMLR 311, para 86.

ther and actually prove those effects. At paragraph 164 the ECJ specifically stated that a concerted practice may have an anticompetitive *object*, thus harnessing the words of Article 81(1) itself (agreements and concerted practices *the object or effect of which...*) in support of the proposition that the concerted practice does not have to have produced effects on the market. Even if one has semantic, or indeed philosophical, problems with the proposition that a concerted practice need not have produced effects on the market, the law is clearly stated in this judgment. In *British Sugar*⁶⁸, the Commission specifically concluded that there can be a concerted practice even in the absence of an actual effect on the market.

(ii) *The burden of proof and economic analysis*

An important issue, having established the legal definition of what constitutes a concerted practice, is to consider who bears the burden of proof and the role of economic analysis in cases on concerted practices. In particular, one must consider whether it would be legitimate for the Commission or the Community Courts to hold that there is a concerted practice where there is no actual evidence of contact between alleged conspirators, but only circumstantial evidence such as a history of parallel pricing and contemporaneous price rises.

(A) THE BURDEN OF PROOF. The burden is on the Commission to establish that there has been a concerted practice and the Community Courts have annulled decisions where they were unhappy about the evidence on which it relied⁶⁹. In particular, the ECJ's judgment in *Compagnie Royale Asturienne des Mines SA and Rheinzink GmbH v Commission*⁷⁰ established that, whereas parallel behaviour can be circumstantial evidence of a concerted practice, it cannot be conclusive where there are other explanations of what has taken place⁷¹. There the Commission had concluded that the simultaneous cessation of deliveries to a Belgian customer, Schlitz, by CRAM and Rheinzink of Germany was attributable to a concerted practice to protect the German market. The ECJ held that there was a possible alternative explanation of the refusal to supply, which was that Schlitz had been

⁶⁸ *British Sugar plc, Tate & Lyle plc, Napier Brown & Company Ltd, James Budgett Sugars Ltd* OJ [1999] L 76/1, [1999] 4 CMLR 1316, para 95ff, on appeal Cases T-202/98 etc *Tate & Lyle v Commission* (judgement pending).

⁶⁹ See eg Cases 40/73 *Suiker Unie v Commission* [1975] ECR 1663, [1976] 1 CMLR 295; Cases 29 and 30/83 *Compagnie Royale Asturienne des Mines SA and Rheinzink GmbH v Commission* [1984] ECR 1679, [1985] 1 CMLR 688, and Cases T-68/89 etc *Società Italiana Vetro v Commission* [1992] ECR II-1403, [1992] 5 CMLR 302 in each of which the Community Courts quashed some or all of the findings of concerted practices.

⁷⁰ Cases 29 and 30/83 [1984] ECR 1679, [1985] 1 CMLR 688.

⁷¹ See Commission's XIVth Annual Report on Competition Policy, point 126.

failing to settle its accounts on the due date, and that as the Commission had not dealt with this possible explanation of the conduct in question its decision should be quashed.

(B) THE ROLE OF ECONOMIC ANALYSIS. The second issue is the significance of economic analysis of the market in determining whether there is a concerted practice. Economic analysis may reveal that parallel conduct is innocent where the market is oligopolistic and the products homogeneous; alternatively it may suggest that there has been price fixing, where parallel prices have been charged over a long period in what would seem to be a competitive market. Both the Commission and the Community Courts have been at pains to show that they appreciate that price competition in an oligopoly may be muted and that oligopolists react to one another's conduct. In *Dyestuffs*⁷² the ECJ said at paragraphs 65 and 66 that:

By its very nature, then, the concerted practice does not have all the elements of a contract but may inter alia arise out of co-ordination which becomes apparent from the behaviour of the participants. Although parallel behaviour may not itself be identified with a concerted practice, it may however amount to strong evidence of such a practice if it leads to conditions of competition which do not respond to the normal conditions of the market, having regard to the nature of the products, the size and number of the undertakings, and the volume of the said market.⁷³

It added at paragraph 68 that the existence of a concerted practice could only be appraised correctly:

if the evidence upon which the contested decisions is based is considered, not in isolation, but as a whole, account being taken of the specific features of the products in question.

In *Dyestuffs* the parties argued that they had acted in a similar manner only because of the oligopolistic market structure. The ECJ rejected this assertion since the market was not a pure oligopoly: rather it was one in which firms could realistically be expected to adopt their own pricing strategies, particularly in view of the compartmentalisation of the markets along national boundaries. The ECJ recognised that there might be situations in which a firm must take into account a rival's likely responses, but said that this did not entitle them actually to co-ordinate their behaviour:

Although every producer is free to change his prices, taking into account in so doing the present or foreseeable conduct of his competitors, nevertheless

⁷² Cases 48/69 [1972] ECR 619, [1972] CMLR 557.

⁷³ A problem with the last sentence is that it contains a reference to the unknowable: what would happen in "the normal conditions of the market" when, *ex hypothesi*, the market under investigation is not "normal"?

it is contrary to the rules on competition contained in the Treaty for a producer to cooperate with his competitors, in any way whatsoever, in order to determine a co-ordinated course of action relating to a price increase and to ensure its success by prior elimination of all uncertainty as to each other's conduct regarding the essential elements of that action, such as the amount, subject-matter, date and place of the increases.⁷⁴

In *Züchner v Bayerische Vereinsbank AG*⁷⁵ the ECJ repeated that intelligent responses to a competitor's behaviour would not bring firms within the scope of Article 81(1). In *Zinc Producer Group*⁷⁶ the Commission went out of its way to state that it did not intend to condemn parallel action between 1977 and 1979 which might be explicable in terms of "barometric price leadership", saying that in such circumstances "parallel pricing behaviour in an oligopoly producing homogeneous goods will not in itself be sufficient evidence of a concerted practice"⁷⁷. In *Peroxygen Products*⁷⁸ however the Commission rejected an argument that an agreement between oligopolists fell outside Article 81(1) since, even without the agreement, the structure of the market would have meant that they would have behaved in the same way. In the Commission's view, the very fact that the firms had entered into an agreement at all indicated that the free play of competition might have led to different market behaviour.

In *Wood Pulp*⁷⁹ the Commission held that producers of wood pulp were guilty of a concerted practice to fix prices in the EC. There had been parallel conduct on the market from 1975 until 1981, but there was no evidence of explicit agreements to fix prices. However the Commission concluded that there was a concerted practice, basing its finding on two factors. The first was that there had been direct and indirect exchanges of information, which had created an artificial transparency of price information on the market. The second was that an economic analysis of the market demonstrated that it was not a narrow oligopoly in which parallel pricing might be expected. Rather the market was competitive, there being many sellers producing different products; these competitors faced different cost structures, were situated in different countries and would be expected, in the absence of collusion, to sell at different prices. In these circumstances the only explanation of the parallel pricing was that there was a concerted practice. On appeal, the ECJ substantially annulled the Commission's

⁷⁴ Ibid, para 118.

⁷⁵ Case 172/80 [1981] ECR 2021, [1982] 1 CMLR 313, para 14.

⁷⁶ OJ [1984] L 220/27, [1985] 2 CMLR 108.

⁷⁷ OJ [1984] L 220/27, [1985] 2 CMLR 108, paras 75-76.

⁷⁸ OJ [1985] L 35/1, [1985] 1 CMLR 481, para 50.

⁷⁹ OJ [1985] L 85/1, [1985] 3 CMLR 474.

findings⁸⁰. The fact that pulp producers announced price rises to users in advance on a quarterly basis did not in itself involve an infringement of Article 81(1): making information available to third parties did not eliminate the producers' uncertainty as to what each other would do⁸¹. Furthermore, there were alternative explanations for the system of and simultaneity of price announcements, and the parallelism of prices could be explained other than by the existence of a concerted practice⁸². This importance judgment demonstrates the point above, that the burden is on the Commission to prove the existence of a concerted practice, and in particular to deal with any alternative explanations of parallelism on the market. The judgment, however, does not contradict the idea that, in an appropriate case, parallelism could be evidence of a concerted practice where there is no plausible alternative explanation. Indeed the ECJ itself recognized this at paragraph 71 of its judgment.

(D) "Unilateral" conduct and Article 81(1)

The scheme of the EC competition rules is that Article 81 applies to conduct by two or more undertakings which is consensual and that Article 82 applies to unilateral action by a dominant firm. It follows that unilateral conduct by a firm that is not dominant is not caught at all, which is why in some cases fairly outlandish claims of dominance have been made⁸³. However it is important to appreciate that conduct which might at first sight appear to be unilateral has been held by the Commission to fall within Article 81(1) as an agreement or, more usually, a concerted practice, and that the Commission's decisions in this respect have usually been upheld by the Community Courts. This is particularly true of conduct that takes place within a distribution system: apparently independent, unilateral action will be held to be attributable to or emanate from the underlying distribution agreement and therefore to be within Article 81(1).

In *AEG-Telefunken v Commission*⁸⁴ the ECJ rejected a claim that refusals to supply retail outlets which were objectively suitable to handle AEG's goods were unilateral acts falling outside Article 81(1). The ECJ held that such refusals arose out of the contractual relationship between the supplier and its established distributors and their mutual

⁸⁰ Cases C-89/85 etc *Ahlström Oy v Commission* [1993] ECR I-1307, [1993] 4 CMLR 407; see Van Gerven and Varand (1994) 31 CMLRev 575.

⁸¹ *Ibid*, paras 59-65.

⁸² *Ibid*, paras 66-127.

⁸³ See eg Case 75/84 *Metro v Commission (No 2)* [1987] 1 CMLR 118, paras 79-92; Case 210/81 *Demo-Studio Schmidt v Commission* [1983] ECR 3045, [1984] 1 CMLR 63.

⁸⁴ Case 107/82 [1983] ECR 3151, [1984] 3 CMLR 325.

acceptance, tacit or express, of AEG's intention to exclude from the network distributors who, though qualified technically, were not prepared to adhere to its policy of maintaining a high level of prices and excluding modern channels of distribution. AEG's refusals to supply were not unilateral but provided proof of an unlawful application of its selective distribution system, as their number was sufficient to preclude the possibility that they were isolated cases not forming part of systematic conduct⁸⁵. In *Ford v Commission*⁸⁶ the ECJ held that a refusal by Ford's German subsidiary to supply right-hand drive cars to German distributors was attributable to the contractual relationship between them. The *Ford* judgment is an extension of *AEG*. In *AEG* there was an obvious community of interest between the distributors who received supplies from AEG, that "cut-price" outlets should not be able to obtain goods and undercut their prices; in this case it was easy to see that certain assumptions might creep into the relationship between AEG and its usual customers. In *Ford* however the German distributors with whom Ford had entered into contracts did not themselves benefit from the refusal to supply right-hand drive cars: the beneficiaries of this policy were distributors in the UK, who would be shielded from parallel imports. Here the "unilateral" act held to be attributable to the agreements between supplier and distributors was not an act for the benefit of those very distributors.

In several decisions after *AEG* and *Ford* the Commission has applied Article 81(1) to apparently unilateral conduct. In *Sandoz*⁸⁷ it held that, where there was no written record of agreements between a producer and its distributors, unilateral measures, including placing the words "export prohibited" on all invoices, were attributable to the continuing commercial relationship between the parties and were within Article 81(1). On appeal the ECJ upheld the Commission's decision⁸⁸; in *Vichy*⁸⁹ the Commission specifically applied paragraph 12 of the *Sandoz* judgment. In *Tipp-Ex*⁹⁰ the Commission applied the ECJ's judgments in *AEG* and *Ford*, holding that there was an infringement of Article 81 consisting of agreements between Tipp-Ex and its authorized dealers regarding the mutual protection of territories. In *Konica*⁹¹ the Commission held that the sending of a circular to its distributors requiring them not to export Konica film from the UK to

⁸⁵ Ibid, paras 31-39.

⁸⁶ Cases 25, 26/84 [1985] ECR 2725, [1985] 3 CMLR 528.

⁸⁷ OJ [1987] L 222/28, [1989] 4 CMLR 628.

⁸⁸ Case C-277/87 *Sandoz Prodotti Farmaceutici SpA v Commission* [1990] ECR I-45.

⁸⁹ OJ [1991] L 75/57, upheld on appeal Case T-19/91 *Vichy v Commission* [1992] ECR II-415.

⁹⁰ OJ [1987] L 222/1, [1989] 4 CMLR 425, upheld on appeal Case C-279/87 *Tipp-Ex GmbH v Commission* [1990] ECR I-261.

⁹¹ OJ [1988] L 78/34, [1988] 4 CMLR 848.

Germany was an offer by Konica, and that by complying with the circular the distributors had accepted it so that there was an agreement or at least a concerted practice within Article 81. In *Bayo-n-ox*⁹² goods were supplied at a special price on condition that the customers use them for their own requirements: they could not resell them; this stipulation was contained in circulars sent by the supplier to the customers. The Commission said that by accepting the products at the special price the customers had tacitly agreed to abide by the "own requirements" condition. The fact that a customer is acting contrary to its own best interests in agreeing to its supplier's terms does not mean that it is not party to a prohibited agreement under Article 81(1)⁹³.

A further example of apparently unilateral action being characterised as an agreement is the Commission's decision in *Bayer AG/Adalat*⁹⁴. In order to prevent its continental distributors from parallel importing to its UK distributors, and thereby to protect its UK pricing strategy, Bayer under-supplied its continental distributors to the extent that they were unable to meet their domestic requirements. As a result, the continental distributors ceased supplying the UK and Bayer ceased under-supplying. The Commission held that a tacit agreement existed between Bayer and its continental distributors not to parallel import to Bayer's UK distributors, which was contrary to Article 81(1). This agreement was evidenced by the distributors ceasing to supply the UK in response to Bayer's under-supplying tactics (although it appears from the facts of the case that the distributors tried every means possible to defy Bayer before finally giving in). This decision has been criticised⁹⁵ and was quashed by the CFI, which concluded that the Commission had failed both to establish that Bayer had imposed an export ban and that its distributors had agreed to one.

⁹² OJ [1990] L 21/71, [1990] 4 CMLR 930; see also *Bayer Dental* OJ [1990] L 351/46, [1992] 4 CMLR 61.

⁹³ See eg *Gosmé/Martell-DMP* OJ [1991] L 185/23, [1992] 5 CMLR 586.

⁹⁴ OJ [1996] L 201/1.

⁹⁵ Kon and Schoeffer "Parallel Imports of Pharmaceutical Products: a New Realism or Back to Basics?" [1997] ELR 123; Lidgard "Unilateral Refusal to Supply: an Agreement in Disguise?" [1997] ECLR 352. Also *Systemcare* [1997] ECLR R-152.

7 Competition, co-operation and predation in innovative industries

*Timothy F. Bresnahan**

The industrial organization of supply and innovation in high technology industries forms the backdrop for competition policy regarding those industries. I note some new strategic elements of the organization of the information technology industries. For this conference, with its focus on cartels, I direct attention to the implications for assessing cooperation among firms in these high tech markets.

The animating ideas behind my analysis are threefold. First, an essential output of high tech industries is innovation and technical progress. Cooperation among firms about price and quantity setting remains an issue, of course, though it does not raise any new analytical issues. Cooperation among firms about innovation and technical progress has the prospect of being far more economically important. If the cooperation is anticompetitive, preventing innovation competition among the cooperating firms by reducing either the rate of technical progress or its variety, then it can have powerful negative impacts on consumers, especially in the high-tech infrastructure industries. Correspondingly, if innovation cooperation among competitors is procompetitive, increasing the rate or variety of technical progress, it can have highly levered benefits to society and condemning it in error can be very harmful.

The second animating idea is that the important long run innovation competition in these industries is sometimes not immediately and directly related to current competition between sellers of close substitutes. For a number of reasons, firms may identify their most important potential future rivals among those who currently produce complements. Perhaps the most important reason is that many markets in these industries are highly concentrated with high entry barriers. Accordingly, the best available competition may arise in the long run as a result of the actions of current complementors. They may be the key

* I thank Wayne Dunham for helpful comments.

While I served in the Antitrust Division of the United States Department of Justice and continue, at this writing, to consult to the Division, this paper does not represent the opinion or policy position of the Division but only my own view.

partners of new entrants, may themselves be the most promising entrants, or may be the sponsors of, or among the coalition sponsoring, technical progress which renders existing monopolies valueless or lowers entry barriers into them. While economic analysis¹ and legal analysis² have not yet fully caught up with this development, industry participants have been living with it and analyzing it (at least in the United States) since two landmark events of the early 1980s, the forced vertical disintegration of AT&T and the voluntary vertical disintegration of the personal computer (PC) industry. In both telephony and computing, vertical disintegration has made long run competition among current complementors an essential mechanism for technical progress.

The third animating idea, and the one on which I shall spend the bulk of my time, is that these novel features of the industrial organization of innovation in high tech industries compel a new application of standing antitrust principles. They do not compel the creation of either a new highly interventionist doctrine nor a new doctrine with stronger *laissez faire* elements, as various observers have suggested. The key analytical elements of an anticompetitive agreement, and of a procompetitive one, remain the same familiar ones we already know, suitably translated to think about technological competition. There is, however, a definite need for clear thinking about the empirical proxies for those familiar analytical concepts. The map between “vertical” vs. “horizontal” on the one hand and “procompetitive” vs. “anticompetitive” on the other needs to be rethought in these industries.

An implication of the third idea is that the issue in antitrust analysis remains the same. It is to identify practices that harm competition, whether by excluding competitors or by inducing cooperative rather than competitive behavior among existing firms. This observation is something of a truism, I realize, but somehow the high-tech context induces observers to think that the role of antitrust analysis is to decide what specific market outcomes are good and to push toward them. This particular form of soggy thinking arises on both sides of antitrust debates, with one side tending to like existing market outcomes, however they arose, and the other side tending to think that the job of policy is to identify and pursue the better alternative.

To illustrate these points, I shall talk about a failed attempt to divide markets, Microsoft’s browser offer to Netscape of June 1995. While

¹ See Brandenburger and Nalebuff (1996), Bresnahan and Greenstein (1999), and Bresnahan (1999) for attempts to deal with the issues.

² Baker (1999) with its analysis of a closely related circumstance, “industries with a dominant firm where innovation competition is effectively ‘winner take all’ and where fringe rivals are in a collaborative or complementary (as well as competitive) relationship with the dominant firm” is an important exception.

this offer did not lead to a cartel, it is nonetheless important: had it been accepted, the offer would have prevented so much innovation competition as to become a very strong candidate to be the most harmful 20th century agreement between competitors. (Much of that harm was ultimately visited upon society by other means, as Microsoft rid itself of the competition from Netscape by other anticompetitive acts after the offer was refused.) This offer serves the analytical purposes of this paper because the offer was made in a meeting between two firms that, at the moment they met, were not yet shipping products that were substitutes for one another but were shipping complements; the competition between them was prospective but predictable.

This raises important issues because cooperative agreements among rivals may be essential to the normal functioning of the industry and may be purely “vertical”. Rivals selling complements still need all the opportunities for cooperation – efficient, procompetitive cooperation – that sellers of complements normally need. In the high-tech context, rivals selling highly complex complements that interact in a deep way and that change rapidly with technical progress and market conditions may need particularly entangled communication and cooperation. At the same time, some other cooperative agreements among current sellers of complements will be the most dangerous form of naked market division agreement, as they will undercut entry (future competition) and innovation competition in a context where those are highly valuable.

These new structures also challenge our existing habits of mind in linking familiar antitrust concepts like “horizontal” to the world. I look at some procompetitive agreements among current competitors selling close substitutes. Interface standardization, in which firms agree on the mechanism by which an entire class of current substitutes will interact with another class of products, currently complements to the first, is a frequent example of procompetitive agreements. Of course, this does not excuse market-rigging conspiracies, but it does offer another interesting problem of telling pro- from anti-competitive behavior. This topic, which is taken up in a broader scale in another paper in this volume³, illustrates that applying traditional antitrust principles to new and important industry structures calls for attention to empirical detail.

The structure of innovation in high-tech industries

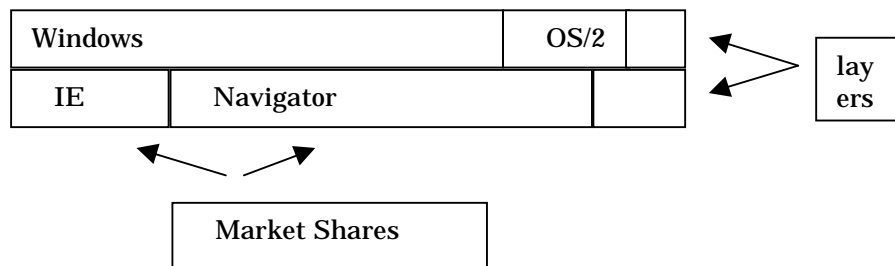
Supply and invention in some high technology industries, notably important parts of information technology industries, is vertically disin-

³ Cf. Halliday and Seabright (2001).

tegrated. The degree of vertical disintegration is not given and exogenous but rather subject to determination over time. Relatedly, vertical disintegration is an important source of competition and innovation.⁴

I illustrate the vertical disintegration in *Figure 1*, immediately below. I use the concept of *layers* to talk about the specific technologies or products that are, at any particular moment, substitutes for one another. The figure, for example, shows an Operating System layer (Microsoft's Windows and IBM's OS/2) and a Browser layer (Internet Explorer from Microsoft and Navigator from Netscape). In between any two layers there is an *interface*. Of course, in reality there are many layers (semiconductor, computer, applications software, server operating system, etc.) but the figure can be abbreviated without losing the points.

Figure 1



Holding the degree of vertical disintegration fixed, that is, holding product boundaries between complements fixed, powerful forces, some socially beneficial, some not, tend to lead to very concentrated structure for some of the “layers.” Not all these forces are given and exogenous; they are subject to both strategic influence by firms (for good or ill) and to policy intervention (wise or not.)

Market structure and its persistence in layers

Many parts of IT are general purpose technologies (GPTs) that are used widely across a range of applications. Computer industry participants tend to use the label “platform” for anything that is a GPT, and to emphasize the value of building applications that go with a platform. For example, they speak of the Windows platform and the applications that run on it. Microsoft worried that the browser or the web

⁴ See, e.g., Grove (1996) as an example of the many business people who have observed this and Bresnahan and Greenstein (1999) for economic analysis.

might become a new platform. Applications builders respond not only to the size of the market associated with a platform, the number of users of Windows, for example, but also to the ease or difficulty of writing applications for it. High usage of a platform is a source of network effects, as applications vendors can amortize their costs across many customers. Good design tools help applications writers make applications quickly, either for one particular platform (this is how most of the Microsoft-supplied tools for Windows applications development work) or for many platforms (“cross-platform”). The network effects between applications writers and users tend to mean that there are few platforms for any given body of commercial computer demand.

While markets in layers with platform elements are frequently concentrated because of the network effects, the corresponding applications markets may be concentrated or not. There are two distinct forces at work. The increasing returns to scale inherent in the design of IT products – the first copy costs are large, as a product embodies considerable knowledge, while reproduction costs are far smaller – tend of course to reduce the number of sellers, as do any network effects associated with specific applications themselves. There are also, however, considerable forces limiting concentration in some applications markets, including the value of differentiation to serve demanders with different needs, specialization to users in particular industries, countries, or professions, and so on. In personal computing before the arrival of the Internet, only a few applications were as ubiquitous as the operating system, notably spreadsheets and word processors. Most other applications – of which there are many – had smaller markets. It is important to emphasize about both applications markets and more “infrastructure” markets like those for operating systems that the forces leading some of them to be highly concentrated have ambiguous welfare economics.

Powerful forces, also with ambiguous welfare economics, tend to lead to the persistence of established positions in many circumstances, making both the firm’s problem and policy problems more difficult. The reasons have, in the case of platforms that are persistent, to do with sunk costs. It is well known that sunk costs in general lead to the possibility of strategy mattering as a source of market structure, and that they sometimes have this effect by making early success persist. (Note again that the persistence may be good or bad for society.⁵) In the case of platforms, it is often true that the users and the applications writers that form the core of the network effect will also have sunk costs. For example, applications writers may use platform-

⁵ See Sutton (1991) for the general theory and Bresnahan and Greenstein (1999) for application to computing.

specific features in an application. Ex ante, they may have more choice over platforms than ex post, after they have sunk the costs of designing those features. Similarly, users may learn to use a platform or the applications that are unique to it, thus sinking the costs of learning. These collectively sunk costs are a force for persistence – for good and for ill.

Many observers, on both the right and the left, make arguments with the same (symmetrical) mistakes about network effects and persistence. First, they argue that their side is right about the welfare economics. On the left, the first half of the mistake is to overemphasize the lock-in aspects of persistent established positions, while on the right, it is to overemphasize the increasing returns elements. The second half of both mistakes is to “know” what the right market outcome is and use this to favor an antitrust policy that leads to it. On the left, this takes the form of “knowing” that there is a strong tendency to incorrect market outcomes in these markets, while on the right, it takes the form of “knowing” that the markets will have found the right structure even if that is highly concentrated and persistent. Both of these arguments err in assessing the difficulty of figuring out the right market outcome in high tech industries. Both also misconstrue the proper role of antitrust analysis and antitrust enforcement, which is to ensure that market processes are unencumbered by the kinds of activities – be they agreements among competitors or attempt to exclude competitors – which prevent the best available market experiment from being conducted. Both left and right are using a regulatory rather than a competition policy framework here. Antitrust should be concerned with actions that neuter the competitive process, denying consumers influence on market outcomes, rather than with deciding what the right market outcome should be.⁶

The issue of lock-in and the possibility of an “inferior” technology winning is used as something of a red herring by both sides. Apparently serious people point out that there is actually supply of some things subject to network externalities, e.g., fax machines – and adduce this as evidence probative of the proposition that we should never worry about lock-in at all. Other apparently serious people suggest that the existence of dynamic network effects raises the dangerous likelihood of persistent bad market outcomes, ignoring the possibility

⁶ Of course, one would like to be sure that the resulting competition is highly valuable. For the argument that it is valuable in general to have fringe entrants who begin as complements compete in network industries, see, e.g., Baker (1999), for the idea that is a particularly good idea in computing at the time of the commercialization of the Internet see Bresnahan (1999), and for the idea that competition specifically from an independent Netscape browser would lead to highly valuable payoffs to consumers see, among many other analyses from Microsoft, Bill Gates’ pithy assessment in *The Internet Tidal Wave*, GX 20.

of socially valuable persistence. Both of these arguments are utterly confused for two reasons. (1) For antitrust analysis of network markets to sometimes lead to intervention, all that one needs is that the lock-in is something of an entry barrier, but not a totally insurmountable entry barrier. Then existing firms have anticompetitive incentives to protect themselves from competition and entry and may have the ability. (2) Both arguments confuse market outcomes – the welfare analysis of monopoly – with market process – the gaining or maintaining of monopoly power by anticompetitive acts. Monopoly is quite legal, so whether network effects are contributors to existing market power by the “wrong” technology is not part of antitrust analysis. If, however, the firm that has that market power expends resources to prevent competition on the merits by entrants, or uses that market power to reduce competition on the merits in a complement, the presumption reverses: absent a strong showing otherwise, we should assume that the new competition that is bad for the incumbent is good for its customers.

Sources of competition for an established dominant firm in a layer

The nature and scope of the vertical disintegration affects the degree of competition in many of the layers. For certain layers, it is the main source of actual and potential competition, as market structure in them at any given moment tends to be highly concentrated. When there are opportunities for non-incremental technical progress the impact of vertically disintegrated structure can be quite powerful.

For a firm with an established position in a high-tech industry, especially for a firm with a monopoly or dominant firm position buttressed by network effects, the only competition in the long run may come from firms selling complements in the present. If the current industrial organization is vertically disintegrated, firms may identify their most important (future) rivals as selling (in the present) complements, not substitutes. A number of distinct mechanisms can make a powerful complementor a procompetitive force.

First, the complementor, knowledgeable about his partner's business and involved in a closely related technology, can herself be potential entrant. Second, the complementor, by cooperating not only with the existing partner but also his nascent rivals, may act to reduce barriers to entry. Third, the complementor's products may take on some of the functions of the partner's products, engaging in a kind of partial entry. A variant of the third point arises when some new functions might be located in either the complementor's or the partner's layer. This third point is particularly important in markets like software, where the

same functionality can be moved across malleable product boundaries. Fourth, if existing or new technologies defining a network could be controlled by either partner or complementor, there will be rivalry over that control. In software, this will typically take the form of “applications programming interfaces”, or “platform” features – specific instances of the manner by which a particular software product interfaces with complements generally.

There is another reason why establishment of a complementary position may be an important part of competition. If there are entry barriers in a particular layer, a strong (present) complementor may be able to gain widespread distribution where a direct (present) competitor would not. This can make establishment of the strong complementary position a key first step in the (necessarily indirect) entry process.

The importance of future competition from current complementors comes by four distinct innovation routes. All are related to the basic economics of network effects. Network effects consist of positive feedback and social scale economies, and thus are a very good feature of high tech industries. Yet they are also associated with the possibility of lock-in. The interface standard at the center of network effects can be rendered obsolete by technical progress – but the dominant firm in the platform-defining layer will wish to prevent this. This leads to the four distinct points:

(1) competition from complementors can end locked-in positions by weakening entry barriers and giving consumers a choice where they had not had one for a while,

(2) if a complementor gains widespread distribution because it embodies new technology, it can be the beginning of leapfrog competition which takes the market to new and more valuable technological bases and network effects,

(3) competition set off by a complementor can take root quickly, while the other available entry routes are very slow,

(4) the choice between distinct directions for technical progress offered by current complementors offer opportunities for consumers to influence the direction of technical progress in the large, opportunities which are otherwise rare because of the power of network effects associated with existing standards.

In sum, potential future competition encouraged or engaged in by current complementors is a form of competition well worth protection from anticompetitive agreements (or from exclusionary practices not in the form of agreements). The important issues for competition policy in high-tech industries may be more in enabling opportunities to lower entry barriers, leapfrog competition, and rivalry over the long run than in concern about literal cooperation among existing horizontal

competitors, of whom there may not be that many in any event in many layers.

The browser threat to Microsoft's monopoly position

The key issue to understand in assessing any contract's or offer's anti-competitive impact is the nature of the competition that would occur absent the contract. This is particularly important when the anti-competitive impact arises through undercutting potential competition, as is the case in the Microsoft offer to Netscape.

Microsoft's documents tell a clear and direct story of the mechanisms by which an independent, widely distributed browser – such as Netscape's – would have led to improvement in competitive conditions. The main mechanisms involve technical progress and entry, but not a distant, blue-sky prospect, instead imminent and clearly foreseen by Microsoft and other industry participants. In one kind of mechanism the browser lowers entry barriers into Microsoft's core monopoly, PC operating systems. Another mechanism has the browser becoming a partial substitute for operating systems, another, being the distribution vehicle for partial substitutes, such as cross-platform Java.

Operating systems have strong network effects. Users choose an operating system, in substantial part, because of the applications it lets them run. Applications writers, in turn, value an operating system that has many users, their potential customers. This leads to positive feedback effects that lead successful operating systems to grow yet more successful in their role as a “platform” for applications. Since both users' and applications writers' investments are, in part, specific to the platform and sunk, successful platforms tend to persist. They need not persist forever, however. When there is substantial new technological opportunity, users and applications writers will put relatively less weight on their existing investments and more on the new applications areas enabled by the new opportunity. This lowers entry barriers.⁷

An independent browser was the vehicle by which the commercialization of the Internet would be such competition – enhancing technical progress.

Microsoft's internal deliberations identified, in the spring of 1995, several key features of the Internet and the browser that threatened an increase in competition.

⁷ While Microsoft's defense team disputed this story loudly in court, the firm's employees believe it, act on it, and write it down with great regularity. I shall not rehearse that evidence any further, but direct your attention to sections II and III of the Findings of Fact, and, for sources in MS documents and elsewhere, to section II of the Plaintiffs' Revised Proposed Findings of Fact. See also MS' view of the issues (which did not prevail in court) at Defendants Revised Proposed Findings of Fact Section V.

- New and highly valuable application categories. This is obvious in hindsight, as many people now buy a PC to get access to the Internet and many other longtime PC users now access the Internet regularly. It was also quite clear to both Microsoft and Netscape at the time.
- The possibility of the browser as a partial platform for new applications categories. The browser might, after some technical progress, offer services to applications programs through “applications programming interfaces” (APIs), just as operating systems do.

New applications classes were likely to be focused on the Internet, thus some applications writers might focus on browser APIs not OS APIs.

- Applications might run on a different computer than the user was sitting at, called a server. The browser might become the mechanism for giving users access to server applications. Until communications speeds from servers grow very rapid, applications might run partly on servers and partly on PCs. The browser could be the distribution method for a divided-applications technology, like Sun's Java.

Microsoft identified all of these potentials and discussed them and reacted to them in ways that show what it feared was a loss of its existing market power.⁸ Mr. Bill Gates, the CEO, explains the relevance of the browser threat in a detailed, eight-page single spaced memo, from which I take the header and two quotes, Government Exhibit 20 (GX 20)⁹. Mr. Gates sees the independent browser as bad for Microsoft by increasing competition (“commoditize the underlying operating system”) and innovation in a way that is good for consumers (“create something far less expensive than a PC”) but bad for Microsoft (“scary”):

⁸ I do not rehearse here the numerous analyses by senior Microsoft officials of the nature of the browser threat, which cover all of the distinct theories of why it might end the Windows monopoly just mentioned, excerpting only a few documents here. But see Section III of the Plaintiff's Revised Findings of Fact for more sources.

⁹ The entire document is available in http://www.usdoj.gov/atr/cases/ms_exhibits.htm.

To: Executive Staff and direct reports
From: Bill Gates
Date: May 26, 1995

The Internet Tidal Wave

- - -

A new competitor "born" on the Internet is Netscape. Their browser is dominant, with 70% usage share, allowing them to determine which network extensions will catch on. They are pursuing a multi-platform strategy where they move the key API into the client to commoditize the underlying operating system. They have attracted a number of public network operators to use their platform to offer information and directory services. We have to match and beat their offerings including working with MCI, newspapers, and other who are considering their products.

One scary possibility being discussed by Internet fans is whether they should get together and create something far less expensive than a PC which is powerful enough for Web browsing. This new platform would optimize for the datatypes on the Web. Gordon Bell and others approached Intel on this and decided that Intel didn't care about a low cost device so they started suggesting that General Magic or another operating system with a non-Intel chip is the best solution.

Mr. Ben Slivka, a more junior Microsoft employee, analyzed the browser threat in more detail (cf. GX 1016, from which I take only a small part below) He, too, sees the problem in terms of loss of market power ("operating systems neutral") and as being *very* good for consumers (he was writing at a time when \$500 was far cheaper than most PCs):

The Web is the Next Platform

5/27/95, bens (version 5)

My nightmare scenario is that the Web grows into a rich application platform in an operating system-neutral way, and then a company like Siemens or Matsushita comes out with a \$500 "WebMachine" that attaches to a TV. This WebMachine will let the customer do all the cool Internet stuff, plus manage home finances (all the storage is at the server side), and play games. When faced with this choice between a \$500 box (RISC CPU, 4-8Mb RAM, no hard disk, ...) and a 52Kpentium P6 Windows machine, the 2/3rds of homes that don't have a PC may find the \$500 machine pretty attractive!

Critically, Microsoft identified several perfectly ordinary market structure and distribution characteristics for the browser that made it particularly threatening. While these are sometimes explained in the language of the computer industry (e.g., “API”) that I have just introduced, their market logic is quite simple. The first three key ideas are about the ubiquity of browsers – a competitive problem for Microsoft.

- Large scale browser usage would attract applications writers' attention. Just as applications writers like popular OSs, they would also like a high-volume browser. Applications would be more likely to be written to browser APIs if a browser were widely distributed. Microsoft wanted applications writers to stay with Windows APIs, not to switch.
- Large scale browser usage would make the browser a distribution vehicle for the client side of applications-dividing technologies, such as Java.
- If the same browser could be used on both Windows PCs and other kinds of PCs (or on other, similar or smaller, “client” devices) users could switch away from Windows more easily. This would likely apply most strongly to users focused in the Internet. They might view Windows as substantially less differentiated than ordinary PC users do, if the applications they like to run were written for the browser.

Mr. Gates and Mr. Slivka point directly to these kinds of loss of product differentiation and entry barriers for Windows in the quotes above. This view was widespread throughout Microsoft once the implications of the commercial Internet became visible to the firm. The view was well documented beyond what I have shown you here and was at the heart of MS' decisionmaking¹⁰.

Dealing with the threat

Of course, none of this would be a problem if Microsoft controlled the dominant browser, as they (unlawfully) do now. But in 1995, Microsoft was late to market, back on its heels, and saw no route to winning the browser war via improving its own browser and pricing it low (even zero). Accordingly, it determined the key features of the Netscape browser that were procompetitive and sought, by agreement with Netscape, to remove those procompetitive features. The key thing they wished to prevent was a Netscape-controlled browser that exposed the same APIs on both Windows PCs and other kinds of computers.

To avoid this, Microsoft did some things that were quite legal, such as developing its own browser and attempting to catch up to Netscape

¹⁰ Cf. sources cited in Section III PRPFOF.

in browser features and performance. As of the spring of 1995, however, Microsoft had not yet shipped any browser product, planning to release Internet Explorer 1 coincident with Windows 95 in the summer. At this stage, then, the threat from Netscape to Microsoft's monopoly position was in the future, though forecast by both firms, and the entry of Microsoft into the browser market with an actual shipping product was imminent. The series of meetings between the two firms, culminating in a key meeting in late June of that year, can thus serve to foreground the issues raised in this paper. The competition between the firms was prospective, and at the moment they were producers of complements who were about to come into competition in one firm's market (browsers) and about to lower entry barriers into the other's market (operating systems). They could forecast a near-term situation like that illustrated in Figure 1, with Microsoft dominant in the OS layer and Netscape dominant in the browser layer.

The market-division offer

In the run-up to the June 21, 1995 meeting with Netscape, Microsoft internally debated two closely related offers they might make. One would have Microsoft browsers running in all new versions of Windows (starting with the one due to be released in two months, Windows 95) and Netscape browsers running on everything else (including older versions of Windows, Macintoshes, Unix computers, and so on.) The other variant was similar, with the Netscape *brand* of browsers ubiquitous, but not exposing APIs on the new Windows (Windows 95), instead relying on Microsoft software that would expose APIs. Either of these arrangements would prevent the "nightmare scenario" from coming true by preventing a cross-platform strategy by Netscape.

Microsoft recognized that Netscape, heretofore the "browser company" with a 85% browser market share, would not agree to these arrangements, as they benefited Microsoft while harming Netscape. To give up the Windows 95 browser would be to give up the future of the browser, as it was easy to forecast that Windows 95 would, quite soon, become the most popular form of Windows and thus the dominant PC operating system. To give up control of browser technologies on Windows 95 would be just as bad for Netscape, as that would undercut the possibility of enabling 3rd party applications based on their browser – the first point in building network effects is widespread distribution. At the same time, it would weaken Netscape's claim as the technology leader in the commercialization of the Internet, and thus undercut its role in setting standards for communication between end user computers ("clients") and the Internet. Anticipating Netscape's resistance, Microsoft sought to offer a quid pro quo. As Microsoft was proposing

taking the lion's share of the browser business, and as they did not yet have an even comparable browser product, they would need to make a serious offer. At the same time, they hoped to convince Netscape that the browser business, in and of itself, was not going to be profitable. This would lower Netscape's demand price for participating as the junior partner in the allocation of the market they had pioneered.

Microsoft considered both carrot and stick elements to its to get Netscape to agree. On the carrot side, Mr. Gates suggested giving Netscape a great deal of support to move away from software on the "client" (PC at which the end user sits) as that would necessarily involve competition with Microsoft, into "server"-side technologies. This would leave the two firms not competing for several years, in his assessment (Cf. GX 22). Microsoft officials considered warning Netscape about the dire consequences of being a rival of Microsoft, and suggesting a broad-ranging "relationship" between the companies including perhaps an equity share and a board seat for Microsoft. There was a lively email discussion of what to offer Netscape among the Microsoft employees who were going to attend, notably Dan Rosen and Thomas Reardon, up through Nathan Myrhvold and Paul Maritz, up to Mr. Gates himself, who wrote: "I think there is a very powerful deal of some kind we can do with Netscape . . . I would really like to see something like this happen!"¹¹

At the meeting, Marc Andreessen (inventor of the browser and a Netscape founder) took notes on a laptop computer. These are in GX 33, from which I reproduce portions below; in most of these excerpts Mr. Andreessen is paraphrasing Microsoft attendees, so that the "you" immediately below is "Netscape".

Would you be interested in having a partnership where NS gets all the non-Win95 stuff and MS gets all the Win95 stuff? If NS doesn't want to, then that's one thing. If NS does want to, then we can have our special relationship. THREAT THAT MS WILL OWN THE WIN95 CLIENT MARKET AND THAT NETSCAPE SHOULD STAY AWAY.

Clearly, the market-division offer was made and it set Andreessen off, as you can see from his all-caps. The offer was apparently made in both forms. Andreessen again:

Potential point of contention - - -

Single most important element of your business is NSAPI. That's an API. Therefore that's a platform. Horrors. That's in conflict with us.

Other points in the narrative show that there was a carrot and stick. Andreessen paraphrases MS: "If we had a special relationship, you

¹¹ The quote is from GX 22, see also GX 18, GX 24.

wouldn't be in this position." and that the core issue was about whether to cooperate or not. "All of the relationship points revolve around critical fact of - - is Netscape the kind of company that's going to partner with MS on this or not?" The corporate-control arrangements were discussed as well, as were the threats and promises.

Microsoft would argue in court that the notes were cooked by Netscape's lawyers, perhaps much later. But they were emailed by Andreesen that very evening to attorneys, and a communication from another Netscape attendee to a colleague at AOL on the same day summarizes the meeting succinctly, with rather more emphasis on the stick than the carrot.¹² Cf. GX 34 (spilling over two pages of a contemporary email in AOL files):

Microsoft was at Netscape yesterday. Dan Rosen was there, the guy that did the UUNET deal. They wanted:

- equity
- a board seat
- Netscape to renounce the network as a platform
- Netscape to disclose all plans to Microsoft
- Netscape to limit access to API's.

And in return, Netscape would be Microsoft's special partner, get inside information, etc... and if Netscape didn't do the deal, Microsoft would crush them. It was funny to listen to Marc take umbrage at "arrogant 25 year olds from the University of Washington."

After the meeting, another exchange of emails among the Microsoft employees shows that a market division offer was made. Mr. Rosen, in three pieces I have taken from GX 537, summarized for superiors up to Mr. Gates Microsoft's main goal as the market division¹³:

Our goals going into the meeting were (in priority order):
1. Establish Microsoft ownership of the Internet client platform for Win95.

ChrisJo summed up the purpose nicely. "We need to understand if you will adopt our platform and build on top of it or if you are going to compete with us on the platform level." All of the Netscape players were clear - they want to build on our platform as a first preference.

¹² This is long before the AOL/Netscape merger, which was predicated on Netscape's later business difficulties as the threats made here were carried out. The communication speaks more to the gossipy and collaborative nature of Silicon Valley business - an efficient organizational response to the vertically disintegrated structure of innovation. Note the personal joke at Mr. Andreesen's expense.

¹³ The entire exhibit may be found at <http://www.usdoj.gov/atr/cases/exhibits/537.pdf> or click on a link from http://www.usdoj.gov/atr/cases/ms_exhibits.htm

On the client end, we discussed "sucking most of the functionality of the current Netscape browser (but not the toolbar, cool places or advertising) into the platform; they seemed OK with this concept.

As you can see, Mr. Rosen believed Netscape was going to accept the market division offer, but a more junior Microsoft attendee, Thomas Reardon, disagreed, arguing (also in GX 537) that Netscape grew tense when the market division was proposed, and that it was their true goal to "preempt" the planned Microsoft browser, Internet Explorer and to compete with Microsoft in a coalition of firms making complements. Mr. Gates, despite having not been at the meeting, resolved the dispute with perfect accuracy: Netscape was going to compete, not accept the market division.

Interestingly, the same meeting and others earlier and later also included other discussions on which the two firms were able to agree. These included technologies for secure transactions on the Web (STT) that were of value to both firms as standards.

In its lawsuit, the U.S. government characterized this as a failed attempt at making an agreement not to compete. Under U.S. law, failed agreements are illegal under section 2 of the Sherman Act. In contrast to successful agreements, which are illegal per se and have both parties liable, failed agreements have only the offering party liable and are subject to more exacting § 2 analysis.

It is clear from the documents we have just seen that MS threatened and bribed NS for the sole purpose of avoiding competition. Netscape did not accept the offer, instead, they complained to their antitrust counsel and to colleagues in the software industry. The two firms began the "browser war," ultimately won by Microsoft unlawfully. In later stages of the browser war as here at the beginning, Microsoft thoughtfully decided it could not win on the merits, and proceeded to win by an enthusiast campaign of anticompetitive attacks.

Microsoft's defenses

In the antitrust case, Microsoft's defenses of its actions against the browser fall into two primary classes. These might be called "Hypercompetitive", in which the (strictly temporary!) Windows monopoly was in immediate danger of destruction at the hands of Netscape, excusing any acts, even those normally illegal under the antitrust laws, and "uncompetitive" in which Microsoft paid little or no attention to Netscape, as Netscape was of little strategic import and no real threat, just some irrelevant startup that foolishly tried to commercialize as an application a technology which Microsoft had long planned (ever before it was invented!) to include in the operating sys-

tem. To explain the market allocation meeting, Microsoft's attorneys chose a number of different variants on the "uncompetitive" theme.

The first was that the key meetings was a low-level one, attended by "no senior Microsoft executive involved in setting business policy" (DPFOF 1311). This was a tough row to hoe, in light of the extensive internal correspondence repeatedly going all the way to the CEO. The Microsoft witnesses tried to stay on message in court and in deposition. At the end of a long string of questions about the market division meetings, Mr. Gates went this far:

Q:... Do you recall whether you agreed that that's what Netscape was doing back in June '95?

A. (Mr. Gates): At this time I had no sense of what Netscape was doing. This is utterly incredible, in light not only of the correspondence about the market division meeting itself, which repeatedly involved Mr. Gates' leadership, but of Mr. Gates' brilliant memo of May 26, 1995, "The Internet Tidal Wave", an 8 page single spaced argument which changed the strategic direction of his company to deal with "a new competitor, born on the internet", Netscape.¹⁴

Relatedly, Microsoft's attorneys tried mischaracterization of the charges, "To the contrary, even if Netscape had accepted Microsoft's suggestion, and made much broader use of the Internet-related functionality in Windows 95 than it currently does, Netscape could have continued developing Web browsing software for Windows 95 with its own user interface and on which ISVs developing 'Internet-related' applications could rely". "According to plaintiffs, Microsoft sought to coerce Netscape to abandon its efforts to develop Web browsing software for Windows 95" a serious mischaracterization of the charges in several dimensions. MS goes on to argue that Netscape's desire to get information about Windows 95 shows that Netscape didn't want to stop such development. The mischaracterizations follow MS' usual rhetorical strategy of blurring logical boundaries. Mischaracterizations like this permitted MS to argue that Netscape's interest in competing with Microsoft in browsers while cooperating with them as an applications writer (a browser must run on an OS) shows (variously) that there was no competition between the two firms and that their relationship was extremely competitive on all dimensions.

¹⁴ In variant version, MS' attorneys attempted to characterize those who attended the meeting as were technologists, not business people. To anyone who knows the company, this is silly. For those who don't know the company, Microsoft introduced two serious studies of its internal structure as evidence at the trial. Both contain plenty of material that shows that Microsoft is very good at training articulate technologist / businesspeople like Mr. Reardon, who writes with verve and intelligence (if unlawfully) about the strategic situation not just the technical one. See Strossman (1996), ch. 2, and Cusamano and Shelby (1996), ch. 2.

A related, equally incredible, defense, was the one Microsoft led within its opening statements¹⁵:

As to the alleged market division that Microsoft supposedly proposed to Netscape on June 21, 1995 and which featured so extensively yesterday, . . . the evidence will show that Netscape's account of that meeting, uncritically accepted by the government, is fantastical. Whether that fantasy arose from the naivete of its author, Mark Andreesen, and was then promoted by his colleagues as a means of enlisting the government as Netscape's protector in the competitive battle with Microsoft, or whether it was concocted from the very beginning for that purpose, we cannot establish. But the evidence will show it was one or the other.

This is another tough row to hoe, given that the account in Andreesen's notes is confirmed by a number of Microsoft documents and by the contemporary communication with AOL. The defense similarly argued that Netscape's CEO's testimony about the meetings seemed to have changed in some details, that Netscape might have welcomed the offer if it had come before launching a successful product, and so on.

The proliferation of small, unconvincing defenses (the notes were cooked, etc.) goes on in this vein for some time, entirely characteristic of the defense offered in the case more generally.

More interesting because of its generality is Microsoft's other main line of defense, which is that the relationship between the two companies at the meeting was entirely technical cooperation between producers of complements. This is, of course, a quite serious antitrust defense if it can be shown. Microsoft put the point strongly¹⁶ :

In fact, the computer industry would cease to function if developers of complementary products that interact with one another in technically complex ways could not talk about how those products interact, now and in the future.

Obviously, many conversations between complementors in the computer industry, are procompetitive; and the elaborate job of proving that proposition offered by Microsoft was entirely convincing if entirely irrelevant to the specific question of what went on in *this* meeting. The focus of this particular conversation was whether the *same* short run complement (Netscape's browser) would work with both Microsoft's product and others in a way that would foster competition, and whether it would be a pure complement or have some substitutable or competitive elements. The alternative to these was market division.

¹⁵ Trial Transcript, October 20, 1998, morning.

<http://www.microsoft.com/presspass/trial/transcripts/oct98/10-20-am.asp>

¹⁶ Defendants Revised Proposed Findings of Fact at ¶ 1330, hereafter DPFof 1330. This document can be found at <http://www.microsoft.com/presspass/trial/r-fof/>.

That should not be made legal just because other conversations between the same firms are procompetitive.

A related defense point is that the relationship between the two companies, while more competitive after the meetings, continued to be polite and involved more interactions of a competitive sort and also more cooperative ones. Netscape did not stalk off in a huff. This doesn't prove much. Nearly every firm in the computer business needs to have a working relationship with Microsoft. Certainly the producer of a mass-market application, like Netscape, does. This point, it seems to me, merely reinforces the broader point that, in this industry, it is not who comes to the meeting but what they say which matters for competition.

“Vertical” agreements that restrict competition

The first deeper question is the evidentiary one. Can courts, looking at current producers of complements who are potential competitors or potential sources of third-party competition, discriminate between procompetitive agreements or offers – ones that relate to the efficient coordination of complements – and anticompetitive ones? This issue is dramatized by the presence of both kinds of discussions in the same meeting. The drama, however, for all the opportunity it gave defense counsel to throw up smoke and dust, should not distract us from the real issue, which is, can a court reasonably decide, on evidence like the documents I just showed you, that a discussion was anticompetitive? The issues are not all that different from those that are presented in a merger buying a potential entrant.¹⁷

In the Microsoft case, the court had the considerable advantage of numerous documents which laid out the competition-avoidance purpose of the proposal in clear business terms. The key fact issues the court had to resolve about browser competition were very easy ones: “My browser will run on operating system A, yours will run on operating systems B and C, and I’ll pay you for this. If you won’t agree to that, here’s how you have to restrict your product running on operating system A, and I’ll pay you for that”. Hearing all the industry jargon that was wrapped around that offer was no more difficult than coming to understand geographic sales territories in a more familiar kind of market division matter. The division of the browser market was an offer between a firm that was about to enter and an existing firm. By the time the district court heard the matter, the entry had occurred and the two firms had spent several years with the sum of their two

¹⁷ Indeed, the first theory of harm to competition raised in the “Non-Horizontal Merger Guidelines” stems from the acquisition of a current complementor who is a potential entrant, exactly the theory of harm in the Microsoft/Netscape meeting.

market shares over 90 percent. Thus it was not very difficult to assess the import and impact of the attempted offer.

More difficult was the court's need to understand what an API was, why the second variant of the offer was as anticompetitive as the first, and why there was a huge impact of the offer on competition in the operating system itself. Here the MS documents are very helpful, for they make clear that the same anticompetitive purposes could be met by the two different offer variants. Indeed, officials of both companies clearly agreed on the fundamental anticompetitive nature of the offer actually made. Ultimately the anticompetitive impact on the operating system market – a vertical theory of why this horizontal market division would be even more anticompetitive – was convincing because of (1) documents explaining those anticompetitive purposes, like the ones adduced above and (2) the role of the market division offer as a kickoff to a pattern of unlawful attempts to blunt the impact of an independent browser.

It seems to me that there is a clear limit here. Without support from documents and the testimony of industry participants, experts, etc., the court might have difficulty determining what the interfirm discussions were talking about. Jargony, technical, or in-group language, certainly common in high-tech industries as in many others, requires elucidation. In cases of genuine uncertainty about the import of what was said (not a condition met here) it seems that the appropriate standard should be cautious, for the alternative hypothesis when the discussions are among present complementors is that the contract is efficient coordination. There is no such uncertainty in the present instance.

More generally, it is not obvious that the enforcement authorities or the courts should expect to see very many agreements of this form or that they should expect to often find them anticompetitive when they do. Consider, for example, the situation of the personal computer industry in the mid 1980s. IBM had created the dominant standard, and had much of the role then that Microsoft has now. IBM had, however, permitted some competition in its own layer (by having an open architecture) but also had encouraged strong complementors such as Intel and Microsoft in other layers. What if IBM had undertaken actions to lower the threat of increased competition in the PC business sponsored by Intel or Microsoft? Indeed, IBM did own a large stake in Intel for a while, and is reported to have had the opportunity to own an even larger stake in Microsoft.¹⁸ Should a court have found those agreements anticompetitive, if, counterfactually, IBM had bought the Micro-

¹⁸ See Brandenburger and Nalebuff (1996) for discussion of what this would have done strategically.

soft shares? It seems to me very difficult to imagine that. IBM did not understand the role of its partners in fostering competition very clearly (selling the Intel stake after a while and failing to buy the Microsoft one) and I would be amazed to discover a documentary record that would clearly show that IBM's goals were anticompetitive. The documentary record in the Microsoft case is available to us because many, many Microsoft executives understand how IBM lost its position as sponsor of the PC platform, and dedicate themselves to making sure they never face competition in their own layer nor strong complements (such as the independent browser) that might encourage such competition.

Forward-looking agreements

Another potential limitation arises because high-tech anticompetitive agreements are often forward-looking. They involve avoiding technical races that are just starting, allocating future markets, preventing entry, and so on. This raises both nonserious economic arguments and a serious evidentiary one¹⁹.

The first nonserious economic argument is specific to industries of this kind. Sometimes people argue that the future is foreseeable, and that the market will ultimately be a monopoly under network effects and thus agreements not to have a technology race should be legal. This may often be true and should always be unavailing. Here we have an excellent example of a "good cartel" argument, a kind of argument which should not affect the liability standard conceptually. Innovation races are valuable for consumers, as is the development of technological alternatives which the market might choose.

A second nonserious economic argument is that it is impossible to forecast the future, and thus unwise to intervene when one doesn't know how much competition will be blocked by the agreement. This is a real mistake.²⁰ If business people were willing to put down real resources to compete, and avoided that competition by agreement, we should not stop to ask whether much good would have come of their competition. It is the job of the business people, not the burden of proof of the antitrust authorities, to forecast the future, and if acting unilaterally firms see different technical directions as optimal, the right market process is to have them struggle for customer approval.

The forward-looking nature of these kinds of agreements does lead to an evidentiary limitation. The fact that the technologies or products would have been in competition cannot, in the case of an agreement

¹⁹ The issues here are the same as in any merger.

²⁰ Baker (1999) makes this point at some length.

not to enter or more generally not to compete in the future, be easily verified by looking at the marketplace. As with other agreements involving a potential entrant, the possibility of competition but for the agreement must be inferred from such sources as the plans and forecasts of market participants. This is a far larger problem in the case of mergers with potential entrants, less of failed cartelization offers. If asked to block a merger, a court will have to look into the future at the time of the potential reduction in competition. If asked to adjudge a refused offer of payment to an entrant to stay out, the court will have the advantage of looking at market events between the offer and the trial, including the success of the entrant if any.

This need for evidence to determine whether an agreement or offer is anticompetitive or not leads also to the problem of cartel detection. In the Microsoft/Netscape incident, Netscape immediately communicated a transcript of the meeting to antitrust authorities (responding to an open investigation separate from the one which ultimately led to the trial) so this case falls, like those involving disgruntled former conspirators, into the easily detectable class. Netscape's motives had nothing to do with aiding cartel enforcement, of course. The letter their antitrust counsel sent to the authorities emphasizes the stick over the carrot.²¹ Netscape was quite concerned with the "stick" part of Microsoft's offer, the threat of a predatory campaign to remove the competitive possibilities afforded by the Netscape browser. Netscape's private interests, of course, also would lead them to a desire to be protected from Microsoft's legitimate browser competition. Knowing how deeply U.S. antitrust authorities dislike protecting competitors from competition, Netscape's counsel's letter attempts to document a case that Microsoft's near-term plans are anticompetitive. They do not forecast the verve, enthusiasm, persistence, and utter disregard for the law that ultimately characterized Microsoft's browser campaign.

Obviously, not all failed agreements, and precious few successful ones, will have a participant in the discussions taking detailed notes and calling the authorities. Gossipy and collaborative, high-tech industries often involve substantial efforts to involve third parties in nas-

²¹ Although Microsoft's argument that the agreement is not mentioned is nonsense. Cf. GX 1259 at page two, where the plan is summarized as on in which Microsoft "otherwise controls Netscape's ability to compete against Microsoft", and "As you will see from the enclosed documents, the general theme of the negotiation has been that Microsoft owns the platform and that if Netscape is going to compete with Microsoft in any way (at the platform level or the application level), then Microsoft will competitively harm Netscape." Further: "It is contemplated that Netscape would be required to tell Microsoft ahead of time what Netscape is going to do and that Microsoft would be able to take what it wanted of Netscape's ideas and build them into the Microsoft platform. Conversely, however, Netscape would not be able to build anything that even remotely resembled a platform that might compete against the Microsoft platform - and, in particular, Netscape would not be able to build anything that had its own Application Programming interface (API)".

cent technology initiatives. The vertically disintegrated and specialized nature of invention compels this. The complementors often prefer competition among the initiatives, either for the usual economic reasons or to hedge bets about technical and market uncertainty. They form a potentially rich mine of complaints and evidence.

Procompetitive agreements among competitors

The other oddity that the structure and competitive behavior of these industries bring to the fore is the possibility of procompetitive agreements among direct horizontal competitors. Certain interface standard agreements have this characteristic.²²

By an interface standard agreement, I mean a situation in which the software or hardware of a number of different firms will interact at the interface between layers (cf. Figure 1, above) according to agreed-upon specifications. I focus here on agreements among direct horizontal competitors on an interface standard in which each of their competitive products will interact with other kinds of products according to the same specifications, at least in part. Not all interface standards are set by agreement. Some are imposed by dominant firms in the layer on one side of an interface. Sometimes there are races between competing standards, one of which becomes dominant. Sometimes the interface between two layers has two or more mutually incompatible standards. Further, the agreements are usually sanctioned by some kind of industry-wide body, whether official or private.²³ All that aside, the mechanism of agreement between all market participants (both sides of an interface) or all participants in one layer (one side) remains empirically important.

Let me begin, dangerously, with some welfare economics. The primary reason to encourage interface standard setting in general is that it provides a mechanism for the competitive division of inventive labor. If the standard for an interface between two kinds of technology products is open and accessible to all firms on each side of the interface, innovation can be undertaken in a decentralized and modularized manner. This has been a great boon to invention in the personal computer and Internet industries, to name just two. Even when the interface standard is set by agreement among competitors, it can amount to an agreement *to compete*, rather than an agreement *not to compete*. Fixing an interface standard reduces product differentiation among

²² Cf Anton and Yao (1995), Brown (1993), Economides and White (1994), Katz and Shapiro (1998) and Ordover and Willig (1985) for earlier treatments.

²³ An overview of the interface standard-setting process from a practitioner's perspective can be found in the two books by Carl Cargill (1989, 1997). An influential review of the economics of centralized vs. decentralized processes can be found in Greenstein (1996).

products on one side of the interface. Thus, in the short run, competition is increased.

The cost, of course, is that competition between standards, which can entail invention, is foregone when there is such an agreement. There can be important and socially valuable competition between standards. One firm or coalition of firms may, for example, choose a standard which is backwards-compatible with existing technology, while another firm attempts a breakthrough. If the market experiment is not run, the outcome is determined without input from the buyers about whether a breakthrough would be valuable. Similar difficulties arise if there are important distinctions between the technical capabilities of two or more proposed standards. Having sellers choose among them collectively disenfranchises customers if customers might have chosen distinctly.

Turning now from welfare analysis to practical policy analysis, it seems to me that it is *not* a practical suggestion to base competition policy on a detailed and quantitative empirical assessment of whether, in any particular circumstance, the competition within the standard in the present outweighs the competition between standards over the future. This will, in many circumstance, barely clear to industry participants (and they may differ in their assessments) much less determinable in a reasonable amount of time by outsiders in an enforcement agency or a court. Similarly, it seems to me unwise to attempt to draw a bright line between circumstances that are likely to be procompetitive and those which are likely to be anticompetitive, classifying the latter as illegal by the analogy to price fixing conspiracies and the former as legal unless anticompetitive purposes or outcomes can be shown.

The complex mix of circumstances in which there is simply no social value to competition between standards is one powerful reason to avoid bright lines. If two standards (in this case, for transferring information about people, say, customers) differ only in that one encodes customers' names as "Last Name, First Name" while the other uses "First Name-Last Name," then little is gained by running a race between them. The difference between the standards introduces meaningless incompatibility and nothing else. I introduce this example for two related purposes, both of which are discouraging about bright line rules. First, my argument that there is not much to be gained is convincing, isn't it? But think about how you were convinced. You know enough about the technology of computers – everyone does now – to see that I am right. In most practical instances in the policy arena, it takes time and effort for enforcement officials or courts to understand such things (though they can.) My second reason for caution comes from the economic logic of the example, which I think has some gener-

ality. The competition between those two standards is not very valuable because the two standards are very similar, functionally. In anti-trust analysis, we are used to the idea that competition between closer substitutes – similar, functionally – is what we are trying to protect, but in this context the opposite can be true.

A different circumstance but another in which attempting to preserve competition is probably wasteful arises when there has been something of a standards race, but the outcome has already been determined in the marketplace. At that point, sellers' working out the details of the already-known standard serves to remove meaningless incompatibility, not to prevent competition. Practitioners report that this "sweeping up" is by far the most common form of collective standard setting, at least in the formal public and quasi public standard setting bodies. It may be very difficult for outsiders to determine when a standards race is over; look how many people take seriously Microsoft's hilarious argument that the browser standards setting race is ongoing.

It may not be possible to have any market at all without setting a single standard, for either of two distinct reasons.²⁴ First, clearly there are network effects associated with standards, so that there are social economies of scale associated with them. By their very nature, such social scale economies can only be achieved by common use of standards by many other firms. Second, while the firms may be direct competitors in the product market, they may nonetheless have invented different, complementary elements of a new technology. This is often thought of as the problem of multiple blocking patents, but it is not simply a point about formal intellectual property rights. Firms may be complementors in invention though competitors in product markets, a situation in which agreement about intellectual property is likely procompetitive. Standard setting is then the task of finding a standard which is not infringing of any firm's IP, at a minimum one where all the potential infringements are known to all firms. Many standards-setting bodies have formal or informal rules to ensure that their members behave this way.²⁵ In this case, the "agreement among competitors" is actually a contract among complementors that permits competition. Again, these are the kinds of issues which can be resolved with time and care in particular instances, but which argue against a bright-line rule-setting exercise.

²⁴ If there is some reason to think the collaboration as anticompetitive, these should be treated, I would say, in parallel to the cost savings arising from a merger that results in superior exploitation of scale economies, even though it arises from an agreement among competitors.

²⁵ The one antitrust case concerning standards-setting I know of, the FTC investigation of Dell, concerned exactly these issues.

Relatedly, there are the problems posed by the standard-setting agreement among a coalition which is a subset of firms. Those on the outside of the coalition tend to say these are exclusionary, designed to prevent valuable competition from making it on to the level playing field defined by the standard. Participants tend to say either (1) that among the excluded are firms who might set a *de facto* proprietary standard alone, so that the agreement among the rest is the best chance for competition between standards (2) that the excluded firms are ones who might want to destroy rather than participate in the collective standard setting process, or (3) that the excluded are technologically inept and irrelevant, so that the exclusion is efficient. Arguments (1) and (2) were routinely made about IBM in one technological era, and are now routinely made about Microsoft – in both cases by other firms or coalitions of firms who were attempting to set a separate standard in competition with the *de facto* standards associated with those dominant firms' technologies.

These are circumstances in which the exclusion seems efficient. The only available mechanism for competitive standards-setting may be a duopoly of potential standards: dominant firm versus ROW. Obviously, these are circumstances in which one should be careful about the exclusion argument – poor IBM whining that DEC and Wang were trying to predate it out of the computer business! poor Microsoft whining about the “anticompetitive” aspects of Java standard-setting! – consistent with the broad general principal that exclusion arguments should involve a plausible mechanism by which the “prey's” competition is reduced.

An “ideal” policy would encourage the long run competition between standards without discouraging short run competition within the standard or preventing the formation of any interfaces and markets at all, if antitrust policy were capable of being “ideal” in a welfare economics sense. Such an ideal standard is not practical. We are left with the need to apply the logic of anticompetitive agreements or anticompetitive attempts to exclude on a standalone basis in each instance. Much of my reasoning comes from worrying more about anticompetitive acts – like those identified above – that prevent competition between standards. The competition could take the form of racing to establish a *de facto* market standard or possibly having longstanding specialized or differentiated “standards,” or at least (not fully standardized) differentiated interfaces. The question of harm to competition is (1) whether there was the realistic prospect of socially valuable racing or longstanding competition and (2) whether the agreement has as its purpose avoiding such racing or competition. This is not, in its logic, all that unfamiliar an antitrust test, and there is no reason not to apply it in these circumstances. Application will, I suspect, lead to

the continued rarity of prosecutions. The thing that at first glance seems anticompetitive – an agreement among competitors on a standard – will almost never be condemned. The opportunities that extra-market interactions among competitors (e.g., in standards-setting bodies or in negotiations) for anticompetitive shenanigans will, on the other hand, likely yield some provable anticompetitive acts.

Conclusion

Perhaps the most important point of this research comes from thinking carefully about Ray Noorda's ugly but evocative term, "co-opetition". The structure of innovation in the high-tech industries leads, he meant, to the same firms simultaneously having complementarity and substitutability relationships with one another, often on different time scales.²⁶

Co-opetition does two things to antitrust analysis, at a high level. First, as I have been emphasizing here, it transfers our attention from the *names* of the participants in a contract combination or conspiracy to the *nature* of the agreement. This is not, conceptually, a radical step at all; but it does lead us back to the first principles of antitrust analysis rather than suggest the possibility of anything remotely resembling per-se rules or even bright-line legal standards. The root cause is the breakdown in the simple map "vertical", "procompetitive", "horizontal", "anticompetitive". Second, this analysis suggests difficulty in cleanly separating cases of competitors cooperating too much, thereby restraining trade, from cases of competitors excluding or chastening other competitors, thereby monopolizing.²⁷ (There remains the standard difficulty of telling either or both of these from procompetitive actions.) This, too, seems to be ultimately the result of co-opetition. Agreements among co-opetitive firms can mix three very different elements: efficient coordination, exclusion of non-agreers, and reducing competition among the agreers. Over the wide range of strategic, market, and technological circumstances in which these agreements will arise, the three elements can be present in any proportion. This calls for discipline and rigor in stating the mechanism by which any particular agreement or offer harms, or would harm, competition. It calls for no new doctrine whatsoever.

²⁶ The tendency to vertical disintegration and specialization may spread to many other industries, Nalebuff and Dixit suggest, and may do so in a way that divides functions and capabilities of strategic importance. This would make the point more general.

²⁷ In this regard, my analysis parallels formal cartel theory.

Bibliography

Andresen, M., "Notes from Meeting with Microsoft", June 21, 1995, GX 33.

Anton, James J. and Dennis A. Yao, (1995), "Standard-Setting Consortia, Antitrust, and High-Technology Industries", *Antitrust Law Journal*, vol. 64, no. 1, pp. 247-265.

Baker, J. "Promoting Innovation Competition Through the Aspen/Kodak Rule" *George Mason Law Review*, spring 1999.

Brandenburger, A, and B. Nalebuff *Co-opetition*, Doubleday, 1996.

Bresnahan, T. "New Modes of Competition and the Future Structure of the Computer Industry", in *Competition, Convergence, and the Microsoft Monopoly*, a Progress and Freedom Foundation Volume published by Kluwer Press.

Bresnahan, T. and S. Greenstein "Technological Competition and the Structure of the Computer Industry," *Journal of Industrial Economics*, 1999.

Brown, Jack E., (1993), "Technology Joint Ventures to Set Standards or Define Interfaces," *Antitrust Law Journal*, vol. 61, pp. 921-936.

Cargill, Carl, *Information Technology Standardization, theory process and organizations*, Digital Press 1989.

Cargill, Carl, *Open systems standardization: a business approach* 1997, Prentice Hall.

Cusumano, Michael A. and Richard W. Selby, *Microsoft Secrets*, Harper Collins Publishers: London, 1996;

Economides, Nicholas and Lawrence J. White, (1994), "Networks and Compatibility: Implications for Antitrust," *European Economic Review*, vol. 38, pp. 651-662.

Gates, Bill, "The Internet Tidal Wave" Microsoft memorandum, May 26, 1995

<http://www.usdoj.gov/atr/cases/exhibits/20.pdf>

Greenstein, Shane (1996) "Invisible Hand versus Invisible Advisors: Coordination Mechanisms in Economic Networks" in Eli Noam, et al., eds., *Private networks, public objectives*. Elsevier, North-Holland

Katz and Farrell, "The Effects of Antitrust and Intellectual Property Law on Compatibility and Innovation," *The Antitrust Bulletin* Vol. 43, No. 3/4 (Fall/Winter 1998).

Halliday, Jennifer, and Paul Seabright "Networks Good, Cartels Bad – but how could anyone tell the difference?" *This volume*.

Katz, Michael L. and Carl Shapiro, (1998), "Antitrust in Software Markets in *Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace*, J.A. Eisenach and Thomas Lenard (eds.), Boston: Kluwer Academic Publishers (1999).

Katz, Michael L. and Carl Shapiro "Systems Competition and Network Effects", (with Carl Shapiro), *Journal of Economic Perspectives*, 8 (Spring 1994) 93-115.

Ordover, Janusz and Robert Willig, (1985), "Antitrust for High Technology Industries: Assessing Research Joint Ventures and Mergers," *Journal of Law and Economics*, vol. 28, pp. 311- 333.

Slivka, Ben, "The Web is the Next Platform", background document for the Microsoft Internet offsite [meeting], May 27, 1995.

Stross, Randall E., *The Microsoft Way*, Addison-Wesley: Massachusetts, 1996

Sutton, J. *Sunk Costs and Market Structure* MIT Press, 1991.

Legal Documents

(PRPFOF) U.S. Microsoft: Plaintiff's Joint Proposed Findings of Fact (Revised) 9/1999 http://www.usdoj.gov/atr/cases/ms_findings.htm.

(DRPFOF) U.S. v. Microsoft: Defendants' Proposed Findings of Fact (Revised) 9/1999 <http://www.microsoft.com/presspass/trial/r-fof/>.

(FOF) U.S. v. Microsoft: Court's Findings of Fact 11/1999 <http://usvms.gpo.gov/ms-findings2.html>.

"Non-Horizontal Merger Guidelines" U.S. Department of Justice Antitrust Division and Federal Trade Commission (1984) <http://www.usdoj.gov/atr/public/guidelines/2614.htm>.

Citations to Exhibits and Transcripts are in footnotes.

8 A Swedish example - the Petrol case

Christer Fallenius

Previous speakers have already told us about hard core cartels and their detrimental effects to the consumer. The Swedish Competition Authority should also like to give its contribution. I have been given the opportunity to round off today's session by giving you a short overview of the Swedish Petrol Case. I stress "short overview" as the case is pending so I can't go into details of the case and reveal any confidential information.

For those of you who are not familiar with the Swedish Competition Act let me just start by telling you that the Swedish Competition Act is a carbon copy, basically, of the EC rules on competition. Articles 6 and 19 of the Swedish Act correspond with Articles 81(1) and 82 of the EC Treaty. Even if the articles look more or less the same there are, however, some differences concerning procedural issues for example. One important difference is that the Swedish Competition Authority does not have the power itself to impose fines upon companies. We have to "sue" the companies at Stockholm District Court, which in turn has to decide whether the undertakings have infringed the Competition Act and subsequently to what extent they should pay fines. A decision from that court can be appealed to the Market Court, which is a court mainly dealing with competition cases and cases on consumer issues and which is the last resort of appeal.

Introduction to the case

The Swedish Competition Authority has unveiled a cartel amongst the five largest oil companies in Sweden, and has accordingly initiated legal proceedings against them, claiming a fine of in total approximately 90 million euro (740 million Swedish crowns).

The Swedish petrol market

The total turnover (taxes excluded) on the Swedish petrol market was in 1999 around 1.2 billion euro. The five companies in question jointly hold a market share of about 90 percent. As in many other countries the Swedish petrol market consists of only a few players dealing with

the same commodity. Under such conditions parallel behaviour is common which can either be the result of market structure itself – that is a true parallel behaviour – or the result of an agreement between the market players. The pricing on the Swedish petrol market is characterised by parallel behaviour and we are thereby used to concurrent price changes. Over the years many consumers have complained to us about this concurrency and the lack of price-competition. However, those complaints could not be supported by anything else but the fact that the prices were changed simultaneously.

The case

During the autumn of 1999 the Authority obtained information from purchasers of petrol that they had received letters from one or several of the oil companies in the market. The companies had sent their letters almost at the same time. The letters stated that a so-called rebate cut and a corresponding decrease of the petrol station prices were to be undertaken. The letters were also remarkably similar in their wording and all of the five companies announced that they were to lower their prices with 0.15 Swedish crowns per litre (about 0.02 euro). Furthermore, each and every one of the companies declared that the lowering of the price was to take effect on the first of November 1999.

Apart from the similar wording, the letters had been sent – as I mentioned – within such a short space of time that it was logistically impossible for one company to have had time to draw its own letter up without having had previous consultations about the wording with the others.

Compared to earlier observations on concurrent price changes this was something completely new, something more. Consequently we decided to take a closer look at those letters and the circumstances behind them.

A case-team was formed with the task of analysing the information contained in the letters and other factors in order to make a better informed decision as to whether we ought to proceed with the investigation or not. After initial scrutiny we concluded that there was sufficient reason to suspect the existence of a price and rebate cartel. After an application from the Authority to the Stockholm District Court we were granted permission to carry out a “dawn raid” at the premises of the oil companies in question. That is by the way another step we can't take without a court order.

The “dawn raid” was carried out in the middle of the Christmas rush – on 16th and 17th of December 1999. And it caused quite a stir I can assure you. Besides the many different kinds of documents which were collected during those two days (hand-written notes, calendars, print-

outs of e-mails etc.) we also took backups of the computer-systems of one of the companies. The information contained in those backups was examined at a later stage. In total approximately 15 binders of documents were collected at the raid. The information we found supported the initial suspicion of a price and rebate cartel.

In the light of these discoveries we continued the investigation and that involved interviews with a large number of petrol purchasers and others. We also conducted interrogations with about 25 high-ranking officials of the companies.

What is the result of the investigation?

The investigation shows that representatives from the companies, during at least 1999, met in secret to plan and implement an agreement on prices and rebates and that those meetings became more and more frequent. During the course of those meetings, the companies developed a common strategy for lowering their costs in connection with rebates.

I am not going into any detail about those meetings but let me just sum up by saying that they were often meetings ostensibly about a certain environment issue but in reality the discussions were focused on rebate levels, customer categories and how to conduct a common strategy.

The most appropriate time for a co-ordinated reduction of prices and rebates was, according to the companies common plan, the autumn. Since the prices on the global petroleum-market usually drop during this time of year it would be easier for the companies to revert to normal prices without dissatisfying the consumer. Since prices are going down, the customer gets the impression that he is being compensated for the fact that rebates are less.

According to the plan, the companies were, amongst other things, trying to maintain higher price levels than normal prior to the reduction in prices and rebates so as to shield themselves from part of that short term cost. They also refrain from actively competing for customers, in other words, they agreed on a kind of "truce".

Furthermore, the companies agreed on the various categories of rebates into which customers were to be divided and on the prices and rebates to be applied to each of those categories. A consensus was reached as regards how to treat customers with long-term agreements and on rebates for certain large customers (such as public authorities, municipalities and businesses).

The companies altered their rebates in accordance with the common plan. The investigation shows a clear link between the companies' common plan and the measures taken by each of them both internally and on the market.

After having implemented these measures, the companies met to discuss the reactions of certain important customers. They also discussed problems that had arisen in relation to the various termination clauses in the agreements with different customers. Information was exchanged on the progress of rebate level negotiations with customers as well.

In addition to the legal analysis of the suspected price cartel the Authority carried out a study of the immediate economic consequences for the consumers.

The effects of the cartel

Through the cartel, the companies sought both to achieve higher profitability and to maintain the structure of the market. Because of the increases in the rebates in 1998 and the first half of 1999 the companies considered it necessary to reduce them. In their view the discounts had reached unsustainable levels and there was a risk that this would have an adverse effect on the margins. In order to finance the rapid rise in rebates there was an increasing need to raise the prices at the pumps. However, the companies feared that excessive prices at the petrol stations would put them at a competitive disadvantage in relation to companies in the unmanned pumps segment of the market and in relation to companies, which sell cheap without giving rebates. An increase in the profitability of these companies could lead to expansion by them, increased activity on the market and the entry of new competitors.

From September 1999 onwards, the effects of the measures taken by the companies were beginning to show. From this point, and until the general reduction of the petrol station prices, the companies in the cartel imposed a number of marginal price increases. Furthermore, they did not lower prices to normal levels when the cost of raw materials decreased. As a consequence, average prices in September and October were 0.04 Swedish crowns higher per litre in comparison to what they should have been under normal market conditions.

When rebate levels went down, prices at the petrol stations were lowered by 0.15 Swedish crowns per litre. But since price levels were already inflated, the actual adjustment to the prices charged to consumers was less substantial. We have calculated that the consumers as a result of the cartel have lost around half a billion Swedish crowns over a five-year period.

These are only the direct effects of the cartel. It can therefore be assumed that the economic effects for the consumer by far exceed the direct cost-savings made by the companies in the cartel.

The law suit

As a result of the investigation the Authority has applied to the Stockholm District Court for an order requiring the companies to pay fines and this was done in the end of June this year.

The fines applied for totalled approximately 90 million euro. Those 90 million are not equally divided among the companies. The reasons for this are among other things that we have considered both aggravating and mitigating circumstances when determining the fines.

One has to keep in mind that the companies involved in the infringement represent more or less the entire market and that petrol is a vital product for which there is no real substitute. Furthermore, the infringement consists of price and rebates agreements. The conduct is therefore to be seen as a very serious infringement of the Swedish Competition Act.

Aggravating circumstances

As mentioned earlier the secret cartel met on the pretext of ongoing discussions on a certain environmental issue for which a negative clearance had been granted by the Authority. During the autumn of 1999 there was however little discussion on these environmental issues between the companies – it seems. Instead the forum was used as a cartel-nest.

The companies furthermore draw up documents that were to be used in the contacts with the consumers and mislead them as to the real reasons for the rebate cut.

One of the companies played a leading role in the cartel. Another company organised meetings and provided the premises where the discussions took place. A third company, which took an early part in the cartel, informed a fourth company of some discussions, which had taken place, and that a rebate cut was to be undertaken and thereby involving this fourth company in the cartel.

Mitigating circumstances

What about mitigating circumstances then? Well, the Swedish Competition Authority does not yet have a specific leniency program but we hope to get appropriate regulations in the future. The Government has appointed a commission with the task of investigating certain measures to strengthen enforcement in Sweden. The commission will deliver its report in June next year.

However, two of the companies in our ongoing case voluntarily submitted memos at a relatively early stage, shortly after the representatives of the companies were summoned to the interrogation, in which the facts concerning the infringement were described. To some extent

this information contributed to the investigation and was accordingly taken into account when the fines were determined.

What happens now?

Preliminary process measures are now taken. The companies are for the moment preparing their statements of defence, which will be submitted, to the Stockholm District Court during the month of October, according to the actual plan. The Authority may then give its reply. This process of exchanging statements will continue for some months. A fairly good guess would be that the court-session will not take place until late spring 2001.

As I mentioned earlier, the decision by the Stockholm District Court may be appealed by either party to the Market Court, which is the last resort in competition cases.

To round up, I would say that the petrol case is the first major cartel investigation of the Swedish Competition Authority, but it most probably won't be the last. Finding hard core cartels is and will be one of the main missions of our Authority.

May I conclude – being a judge myself – by stressing “alleged infringements” by the five oil companies. After all: No one is guilty until he has been found guilty through a final decision by a court. But I believe that we have a very strong case, even if I take into account the difficulties which we always have to face these types of cases.

And it is a case of great importance, demanding quite a lot of work from our staff. Earlier this morning Commissioner Monti talked about what we see as the tip of an iceberg. One might say that the Swedish Petrol Case represents a big bite of the tip of that iceberg.

9 Deterrent effect of competition law on hard core cartels

Jens Fejø

Economic and other reasons for entering into hard core cartels

Hard core cartels are here to be seen as such agreements or concerted practices as price rigging agreements, market-sharing arrangements, agreements on reduction of production or services.

Primarily is hereby thought upon horizontal agreements, etc.

Examples from the history of the EU competition law are many, such as the *old cases*: the *Quinine*-decision from 1969¹ and judgements from 1970², the *Dyestoff*-decision from 1969³ and judgements from 1972⁴, and the old decisions in *CFA* from 1968⁵, *VVVF*-decision⁶ and *SEIFA*-decision from 1969⁷, *Cimbel* from 1972⁸, just to mention a few among the many from the old period.

As long as there are no deterrent effects to be expected from the law when entering into or upholding hard core cartels *the enterprises can freely consider* the arguments in favour of or against being part of such arrangements.

From an economic point of view there are several considerations to be looked upon in order to assess whether the final outcome of being part of a hard core cartel will lead to gains or not. Also *non-economic considerations* may go into this assessment.

From the point of view of the *society* there may also be economic assessments to be made in order to find out what the reaction towards hard core cartels should be. Here *the economic* outcome of hard core cartels on the price economy as a whole is vital. But also from the

¹Quinine, 16.7.1969; 1969 OJ L 192/5.

²ACF Chemiefarma, Buchler & Co. and Boehringer v. Commission, case 41/69, 44/69 and 45/69, Judgment 15.7.1970; ECR. 1970, 661, 733 and 769.

³Dyestoff, 24.7.1969; 1969 OJ L 195/11.

⁴ICI, BASF, Bayer, Geigy, Sandoz, Francolor, Cassella, Hoechst and ACNA v. Commission, case 48/69, 49/69, 51/69, 52/69, 53/69, 54/69, 55/69, 56/69 and 57/69; Judgment 14.7.1972; ECR, 619.

⁵CFA, 6.11.1968; 1968 OJ L 276/29.

⁶VVVF, 25.6.1969; 1969 OJ L 168/22.

⁷SEIFA, 30.6.1969; 1969 OJ L 173/8.

⁸Cimbel, 22.12.1972; 1972 OJ L 303/24.

point of view of the society *other than economic considerations* may go into the final attitude towards hard core cartels.

The gain or loss by participating in hard core cartels

In a simplified model the possible economic advantages the cartel members will have in a hard core cartel will first of all be dependent of *the elasticity of the curve of demand at the competition price*. If the elasticity of the curve of demand is only low at the competition price an intended collaboration may as a result be expected to lead to a gain for the participants.

Thus, if the cartel members co-ordinate their output and prices they can raise their prices and even reduce their output without losing their customers to any significant extent.

If on the other hand the elasticity of the curve of demand at the competition price is significant a quantitative reduction of sale may be the result of a price rise. The result could be that a reduction in as well the total sale as in the net profit for the enterprises may be the outcome. So even though the encouragement for participation in a hard core cartel may be strong there may sometimes be economic arguments against joining a cartel.

However, the parties should not ignore the fact that *costs* relating to for instance price regulation arrangements may lead to further hesitation from their side of possible cartel participation. And in practical life here mainly two factors are important to the assessment of the costs incurred by co-operation.

The *first factor* is the costs which are created in attempting to reach a joint price which is above the competitive price. The *second factor* is the costs incurred in order to make sure that the agreed price is observed by the other parties to the agreement.

When considering the costs of reaching a price to which the enterprises can agree, the conflicting interests of the enterprises must not be ignored. The optimum cartel price is likely to be less high in the case of a seller with low costs than that of other enterprises. If the products of the undertakings are not identical and they cannot replace each other then difficulties will turn up. Another complicating factor is that, in general, the parties to the agreement do not only market one article, but many different articles. In addition, costs will also be incurred by inserting, often necessary, agreements about renegotiation of the fixed prices when the conditions change. Finally, it is far from always sufficient to fix prices. In particular, the enterprises must frequently bind themselves to reducing their supply. Ancillary agreements about sales quotas, production quotas, etc. may also be required in order for the intended cartel to secure the participating enterprises

in the best possible way. It is especially difficult to eliminate competition between the contracting parties except in the case of price competition.

All these things that enterprises must take into consideration and incorporate in their cartel agreements in order to get the best protection possible may be extremely resource consuming.

If, on top of that, cartel arrangements also are to be concealed from the antitrust authorities, this will entail additional costs, notably where many enterprises have entered into the agreement. Therefore it is often supposed to be improbable that a great number of undertakings can carry out an effective co-ordination of their prices without being detected. On the contrary, a market with few, strongly concentrated undertakings are more likely to make secret price arrangements, etc. However, also competing enterprises which for instance have joined trade associations feel like colleagues, a fact which may enable them to conclude cartel agreements comprising many parties.

Experience from some industries seem to show that overcapacity may be the main incentive to conclude price agreements, for instance in relation to electric equipment, pottery and pipes. The over-capacity of an enterprise and deteriorated conditions are usually interrelated. If prices within a very concentrated industry are already high, moves towards price agreements may notably be made in the cases where there is over-capacity. And price agreements will probably be preferred to price leadership. There would be an inherent instability in the latter case owing to the incentive to deviate caused by over-capacity. Enterprises will be very anxious to avoid price cuts, not the least within industries that were previously able to maintain high prices by virtue of price leadership or other types of collective restraint and which have serious over-capacity. This may encourage enterprises to make price agreements. Falling demand during a period may thus lead to a real price agreement within an industry, which operated under certain lenient forms of market co-ordination earlier on. An industry, which has not collaborated on prices before, will be desirous of such co-operation after a period with decreasing demand.

Costs relating to the execution of a price arrangement must be added to the costs incurred in establishing the agreement. It may be expensive to secure stability. Some agreements and concerted practices are relatively stable. Conversely, others must be supported artificially.

Another essential condition of stability is the absence of over-capacity within the industry concerned. Over capacity may destroy the cartel because every undertaking will feel much encouraged to desert the other parties to the agreement. This may lead to a general and reciprocal suspicion, and the result may be an overall deviation from the agreed price. The inducement to go back on the agreement is

greatest where the industry has heavy fixed costs. In such industries, every undertaking can obtain higher profits, not only as a consequence of the greater sales, which the breach of the price agreement results in, but also of the fall in costs due to the supply increase. On the contrary, the pressure of the over-capacity on the cartel price will be less heavy if fixed costs are low.

The above-mentioned seems to contradict the circumstance that the very establishment of a cartel must often be presumed to have been motivated by over-capacity. But in the case of over-capacity, the profits of the undertakings which participate in the arrangement are automatically increased. If the agreement had not been made, competition would have cut prices, which might have been disastrous.

The trend may make the cartel members keen on getting out of the arrangement. The cartel members may try to free themselves from the cartel by means of secret additional supplies, price cuts concealed as discounts, supplementary services, etc. The participants may also fail to fulfil the conditions of the cartel agreement unintentionally. Where other cartel members discover default, the result may be that they consider themselves to be independent of the cartel, too. Consequently, they may start a price war as a punitive measure. Experience seems to show that the maintenance of an effective cartel entails substantial difficulties even if the antitrust authorities' intervention is left out of consideration.

A cartel is most likely to be established and to survive if there are only few enterprises in the market. But deserters, if any, will most easily be discovered in this case. This fact indicates that it is perhaps only in an oligopolistic market that a cartel can operate and be effectively preserved without the antitrust authorities' knowledge.

However, it cannot be concluded that a concentrated market is frequently a necessary and sufficient condition of concerted practices⁹.

Here a few *non-economic factors* should also be stressed. Firstly it should not be forgotten that in many European countries in professional circles there has been a common feeling which has included a companionship among members of the same profession including a loyalty towards the colleagues within the same business or branches. Thus the tradition of many handicraftsmen of going abroad in order to learn from colleagues in other European countries has undoubtedly had the consequence that virtual common societies of guild have been build up. It must be held for sure that these traditions led to many

⁹For references, see e.g. George Stigler, A Theory of Oligopoly, [1964] *Journal of Political Economy*, Vol. 72, 44ff.; Stephen Martin, *Industrial Economics*, 2nd. Ed, Englewood Cliffs, 1993, 150 ff.; Louis Philips, *Competition policy: a game-theory perspective*, Cambridge 1995, 23 ff.

arrangements with anti-competitive effects in the European countries and several of these arrangements are still in force.

Secondly it is not to be ignored that the feeling among competitors may be that it would be harmful to a good behaviour on the market if they do not adjust themselves to the normally accepted way of doing business, including not to try to gain a better market share at the expense of others.

Gain or loss by hard core cartels seen from the side of the society

Looked upon from the side of society hard core cartels may lead to higher prices, lower output and less possibility for consumer choices. For this reason it seems right to prohibit them.

But it seems to be the situation that there are several, if not many, situations where economic theory will deduce that a clear consequence of hard core cartels is not necessarily higher prices, lower output and less possibilities for consumer choices. An additional argument for prohibiting hard core cartels is therefore that they make the exercise of *market power* possible.

This being said, it is a *vital question* to consider whether these hard core cartels are always dangerous to competition and detrimental to society? If that is so it is to be recommended that they should always be prohibited by antitrust legislation. If that is not so an assessment of also hard core cartels might be taken into consideration for a possible acceptance hereof.

It is important to evaluate the interrelation between agreements, market power and pernicious effects on society. There are various questions: Do price and market-sharing agreements always offer the possibility of acquiring market power, or does this possibility only exist in certain cases? The answer to this question must primarily be found by investigating the impact of the agreements under different market structures. Where the answer on this basis is not affirmative other economic factors must be taken into account. Can it be demonstrated that price and market-sharing agreements can always provide the enterprises concerned with other advantages by increasing their profits and lowering their costs?

It seems to be the situation that from several angles of economic learning the answer to the second question is negative too.

We may thus come to a *first conclusion* that hard core cartels based on economic experiences and considerations may be very harmful. But at the same time we may learn from the same economic experiences and learning that this is not always the situation.

The role of competition law in relation to hard core cartels

What, then is the role of the competition law under these economic circumstances when talking about hard core cartels?

It is clear from experiences as well in the United States as in Europe that the antitrust authorities have reacted severely to these types of restraint. The *American Supreme Court* and the American authorities operate with a per se prohibition and legal writers, who have otherwise criticized the Supreme Court's administration of other issues relating to antitrust law have not tabled much criticism of the Supreme Court's attitude toward the above restrictions of trade.

In *the European Union*, horizontal agreements about market division and about prices have made the authorities react. For them competition rules can be viewed as an important means which contributes to the establishment and maintenance of the big common market. Both the European Commission and the European Court of Justice are very anxious to integrate the national constituent markets by removing every kind of market division. And agreements fixing prices are not accepted in the EU either. A formal per se rule has hardly been established. But where competing enterprises jointly fix their prices, no actual examination of the agreement is made to see if it is compatible with the EU system.

Deterrent effects of competition law on hard core cartels – historical experiences

So, one should realize that in the EU the competition legislation is part of the establishment of a *common European market*. It is clear from the history of European competition case law that the Commission and the Court of Justice including the Court of First Instance have time and again reiterated the learning that hard core cartels are not acceptable within the European Union.

Let me just recall some of the recent examples from which we can deduce that no new line is to be found: *Europe Asia Trades Agreement*-decision¹⁰, the *PVC*-decision¹¹ and subsequent judgements from the Court of First Instance¹², *Pre-Insulated Pipe Cartel*-decision¹³, the

¹⁰Europe Asia Trades Agreement, 30 April 1999; OJ L 193, 26.07.1999, p. 23.

¹¹PVC, 27 July 1994; 1994 OJ L 239/14.

¹²Limburgse Vinyl Maatschappij NV et al. v. Commission, Joined cases T-305/94, T-306/94, T-307/94, T-313/94 to T-316/94, T-318/94, T-325/94, T-328/94, T-329/94 and T-335/94, ECR 1999, II-0931.

¹³Pre-Insulated Pipe Cartel, 21 October 1998, 1999 OJ L 24/1.

Vereniging van Samenwerkende Prijsregelende Organisaties in de Bouwnijverheid and others v. Commission¹⁴ and the *Cement-case*¹⁵.

The fines imposed upon violators of the prohibition in Article 81 are heavy and it includes an important risk to embark in a hard core cartel. So it should be easy to state that the deterrent effect of competition law on hard core cartels is great.

But it must here be ascertained that no reliable figures are available for a more precise estimation hereof. What we know is that the Commission in its assessments has the guidelines established by itself on the basis of Regulation 17, the statements by the Court of Justice and the Court of First Instance and its own experience.

But although it is well known to the business society that there are heavy fines combined with hard core cartels such cartels are still detected and punished.

This gives us an indication that the European way of reacting to them may not be sufficient and may be not adequate.

Assessment of competition law reactions to hard core cartels

Looked upon from the point of an outsider the question easily would come to the mind whether the sanctions imposed on the hard core cartel members are the right ones.

What do we know of the effects of competition law sanctions on hard core cartels? Are they deterrent or are they only viewed upon as the reactions of paper tigers.

When for instance fines of many million Euro are imposed by the Commission on cartel members is the amount then too high or may be too low?

Or is it right at all to punish such kind of behaviour?

Is the inference that the antitrust authorities have chosen the wrong track? Or is there a reason for their sceptical attitude towards these agreements and what is it?

One thing in connection with this is that some interesting problems remain namely whether market conditions may include such peculiar circumstances in some situations that the antitrust authorities should be recommended to accept the types of agreement mentioned, either because such agreements may mean protection against competition or

¹⁴*Vereniging van Samenwerkende Prijsregelende Organisaties in de Bouwnijverheid* and others v. Commission, Order of the Court of 25 March 1996, Case C-137/95 P, ECR 1996, I-1611.

¹⁵*Cement*, 30.11.1994, OJ L 343/1, partly confirmed in *Blue Circle Industries and others* v. Commission, Cases T-25/95, T-26/95, T-30/95, T-31/95, T-32/95, T-34/95 T-39/95, T-42/95 T-46/95, T-48/95, T-50/95, T-65/95, T-68/95 T-71/95, T-87/95, T-88/95, T-103/95 and T-104/95, Judgement 15 March 2000, ECR 2000, II-0000.

because the agreements are not detrimental to society. Thus the question may be raised whether the possibility of *ruinous competition* from important enterprises is an acceptable reason for defending oneself by concluding price agreements with other threatened undertakings in the trade? Or crisis cartels. And can price agreements offer efficiency advantages, which are favourable to society? Can they safeguard enterprises against unfair competition to the benefit of society?

But the more important thing is of course whether hard core cartels without these excuses should be punished much harder than today. And may be supplemented by other reactions¹⁶. Would that bring a better world?

The optimal answers to these questions are not so easy. Although the maximum fine in Europe may go up to 10% of the annual turnover of each firm the impact of the fine on the behaviour of the firm (and of other firms) must in my view from the outset be the decisive point. Would this firm not have been part of the cartel if it had known the amount of the fine to be imposed upon it and is the deterrent effect on other firms strong enough? And have there despite the fine been gains for the firm in question in being part of the cartel? Here one may stress the fact that there are no EU-damages to be paid to the suffering consumers.

Another argument may be that there is not at all existing a situation that should be assessed as a restriction of competition. Often we are presented with the argument that an arrangement is not against the wish of society because it could possibly produce positive results for the society, therefore there should not be reacted so negatively against the arrangement.

Here one must realise that the learning from economic theory can not often be applicable when the legal handling of the cases must take place. First of all it is clear that the cartel authorities for a long time have been and still are hostile towards hard core cartels without looking at the economic rationale for establishing such arrangements and without accepting the explanations given by the participants in such agreements. The reason for this attitude is that a result from an economic analysis may be correct at the point of time when it was carried out but that there is no guarantee that the situation existing at that point of time should remain unchanged later on. On the contrary, it is very often to be expected that for instance a cartel price that might have been viewed as beneficial also to the society for various reasons with the changes undergoing after the establishment of the agreement would be a price not being acceptable from the point of view of society.

¹⁶It may be stressed that agreements violating Article 81 are void, of course.

One could here recall the European Commission's very clear rejection – and pedagogic rejection – of the economic theory arguments brought forward by the parties in the *Trans-Atlantic Conference Agreement*-case¹⁷.

When this has been established the direct way of reacting on price agreements or other hard core cartels seems to be a prohibition without any acceptable explanation for the existence of the cartel. But here it is to be noticed that we miss reactions against the persons. EU competition law only deals with undertakings.

So, my *conclusion* in this respect is that horizontal price agreements and market-sharing agreements should not be allowed except in the cases where they are insignificant to market conditions. The practical problems for the competition law authorities in separating the good hard core cartels from the bad ones would be tremendous. Even though there seem to be several situations such as the failing company argument that could produce acceptable exemptions from this result there must strongly be warned against such steps.

One might on the contrary as a last remark put the question: Why has the Commission not yet put so high fines on hard core cartels that they have been met with the reaction from the side of the Court of First Instance and the European Court of Justice that *the fine in itself is too heavy*. The answer must be that until this happens hard core cartel members are not treated harshly enough, since hard core cartels still exist and they must be seen as a clear threat to a modern society.

¹⁷Trans-Atlantic Conference Agreement, 16 September 1998; OJ L 95, 09.04.1999, 1.

10 Cartel cases: The rôle of the judge

Sir Christopher Bellamy

Despite the great honour of being invited to address this Conference I did have a slight hesitation before accepting. It seemed to me that a gathering of competition authorities under the eye-catching headline Fighting Cartels might turn out to be a somewhat aggressive crusading, even passionate occasion devoted to “How are we going to get them?” Whereas of course a judge, if he is any good at all should always remain neutral, dispassionate, should keep his distance and not be partisan. Well, I won't reveal exactly what delights of Stockholm were promised in order to persuade me to come after all, but I soon changed my mind because I think there is a message that can be properly relevant to this conference which I would like to talk about. And that is the importance of procedure and in particular of procedural fairness whether at the level of the Competition Authority or at the level of the Court. So it is about fairness in procedure that I am proposed to say a few words.

From the point of view first of the Competition Authority. Why does procedural fairness matter at all? Can not all that simply be left to the Court? I would like to suggest that in fact it does matter very much for two reasons. First of all good procedures make for better decisions. However much, after the state of investigation, one is convinced that the case is 150 percent proved there is always the risk that something has been overlooked, some argument has not been properly addressed. So the need to follow certain procedures and above all the need to give convincing reasons and to produce convincing proof rather than simply plausible hypotheses makes for intellectual and professional rigour in the decision making process. How many competition authorities have asked themselves: “Will this stand up in court”? No court wants to quash a decision on a technicality. A court will often strive to avoid doing that. But what sometimes seems to be a technicality, for example in the *Company Maritime Belge* case where the decision was quashed because the statement of objections was not sent to the companies who were fined, but to their trade association, is not in fact a technicality at all. It is part of a much wider principle that the rules are there because procedural fairness is extremely important and

makes for better decisions. But there is a second, rather more intangible even psychological point that is probably more important than the point I have just made. There is in most people, most companies, in society in general, a deep human inherent sense of justice, which is deeply offended if one is condemned without having had a real chance to defend oneself.

I have noticed over the years, both as an advocate and later as a judge in both civil and criminal cases, that in many proceedings from the point of view of the parties in some strange sense the actual result is secondary. What the parties, the participants, are most concerned about is that they have had the chance to put their point of view, that they had the chance to explain themselves; that they have put their arguments, those arguments have been listened to, and have been rejected, if they are rejected, on reasoned and logical grounds. In such circumstances people will accept the result, even if they lose, much more readily if they feel they have been able to put their case, they have been listened to, and they have been taken into account. You may say, and when I say you I mean the competition authorities, that it is not your job, that is the court's job. Our job is to prosecute, end the story. We are there to get convictions. And my comment would be, the further you can go at the administrative level to ensure fairness in procedure, the more open and transparent your procedures and the more willing you are to engage in debate with the parties, the greater will be the public confidence in the system and the fewer appeals will result.

I tried several cases in Luxembourg, which involved decisions – I hasten to say taken long before the present management was installed – which were not particularly strong on the merits, but were brought by appellants essentially because they had a sense of grievance, because they felt that during the administrative procedure no one was really listening to them. And even at the end of the day if they lost 100 percent they would go away at the end of the court process if not happy at least less unhappy, because, at long last somewhere in the system someone had been listening to them. Those sorts of court proceedings can be avoided by close attention to the procedures at administrative stage.

I know it is extremely difficult for you. People will try every trick, all kinds of procedural games, swamp you with documents and so on and so forth. But a proper hearing of the parties should be regarded by the administrators not as a nuisance, a regrettable and boring formality imposed by remote legal rules, but as an obstacle in the conviction of the guilty. Hearing the parties should be regarded – and the competition authorities should regard hearing them properly – as a mark of the highest professionalism. You are all highly professional. You are of

course able to give the parties a fair hearing and to weigh objectively their arguments. You may be up against it, for all kinds of reasons, reasons of resource, reasons of time, because of the tactics that are employed against you. But, if you can, find the time, and find the resources and have the mental attitude to give the parties a fair hearing, to explore their arguments, and to answer those arguments convincingly so that you don't just rubber stamp your own statement of objections, you'll find that there are far fewer appeals, and that such appeals as there are will actually go much better before the court if a case is appealed. If you do your job properly, in most cases, perhaps all cases, the court will back you. If you don't do your job properly the court will quash. It is as simple as that, whatever the consequences. So I would urge upon you at the level of the competition authority the importance of fairness in procedure. You have great powers and the correlative duty is to be fair. Falling in love in most areas of life is a highly dangerous and occasionally disastrous experience; don't fall in love with your own case too quickly!

Well now, what of the courts, what is the rôle of the judge? Well, the first and obvious point is that the rôle of the judge will vary depending very much on the legal system in question. That is the result obviously of the different legal traditions that have grown up over the years. The fact is that the judge forms part of whatever system, of civil or in some cases criminal justice, prevails in the country concerned. And of course it is essentially that legal system which will determine such questions of evidence, questions of proof, what are the rights of the defence and so on and so forth. Oversimplifying very much – and I hope you will forgive me if I do so – there are probably two broad ways of doing it. At one end of the spectrum firstly, there are the traditional pure common law systems of which the United States system is a prominent example where antitrust enforcement in cartel cases is still to a large extent based on the concept of a prosecution, which is brought by a public agency such as the Department of Justice before a court presided by a judge; where indeed the facts may will be decided by a jury, or in some cases as in Microsoft by a judge sitting alone. In those cases, which of course includes all treble damage cases, the judge is effectively the decision-maker, the primer decision-maker. The procedure is wholly adversarial, depends on discovery of documents, oral and written testimony, public cross-examination and all those procedures. I am talking about procedures in court, not for simplicity going into the different more administrative procedures of the Federal Trade Commission. Now, in such systems the rôle of the judge is clearly central and the judges, with greater or lesser success, have effectively moulded the law right from the Standard Oil case down to Microsoft and its consequences. Now, in other systems, at the other end of the spectrum, the

rôle of the judge is, and is intended to be, much less prominent. That is, historical speaking at least, the system that we have in the EU, where the decision-maker, the essential decision-maker, is the cartel authority, and the rôle of the judge is limited or supposed to be limited simply to the control of legality through a system that is essentially an administrative court system. So the decision is taken under the EU-system by the Commission, which of course itself gathers the evidence, itself hears the parties, itself takes the decision, agrees with itself and perhaps imposes very heavy fines. And it goes to the Court, of course there is in fines-cases a full jurisdiction but in most other cases the control of legality is limited to errors of law, errors of procedure, lack of jurisdiction, misuse of powers and so forth. So the control by the judges is supposed to be much more remote. I think it is probably fair to say since the creation of the Court of First Instance the rôle of the judge has in fact developed quite considerably, to a point where there is full judicial control, first of all over whether the primary facts are sufficiently proved, whether the reasoning is soundly based, is the relevant market correctly defined and so forth. And there is increasingly, through the medium of the control of the adequacy of the reasons for the decision, judicial control over the margin of appreciation exercised by the Commission, for example in the grant of exemption under 81(3) as in such cases as European Night Services.

I think this kind of evolution is probably in accordance with the climate of the times. People expect more and more of competition authorities; they rightly expect more of judges. This is partly the influence of such instruments as the European Convention of Human Rights, but it is also I think a much wider and broader awareness throughout society of rights, of the importance of openness, of transparency, of reasoned argument and an unwillingness to accept authority for its own sake. So it is an extremely healthy development in my view that judges should be called upon to do more than they had been traditionally called upon and that competition authorities should be aware now that the judge will take, is expected to take, a much closer interest in the case than was perhaps so 20 or 30 years ago.

Now there are of course all kinds of different models how you do this. In France the competition case will go to the Court d'Appel in Paris, not to the Conseil d'État. In Italy the case will follow the traditional road through the administrative court, as I understand it. In Germany, as I understand it, an appeal from the Bundeskartellamt will go to the Oberlandesgericht in Frankfurt, and that court will exercise a very full control over whether a decision is well founded in law.

There are many intermediate solutions round the world. In Canada, in Australia, in South Africa, as I was learning last night, there is a competition commission, there is a tribunal, and there is competition

appeal court. Here in Sweden you have a justly famous and well-known court in the shape of the Market Court, which also exercises very close control over the decisions by the Competition Authority.

So, one can I think, looking at these different models, begin to ask oneself what one expects from a court. And I have had, or we in the United Kingdom rather, had to ask ourselves that question. Because we have been engaged in setting up a new court to deal with competition cases. And I like just to close by telling you a little bit about how we have gone about it. There probably is no universal solution, no one size fits all, but you can perhaps develop certain criteria of what you expect from a court to give public confidence in the system. Is it accessible? Is it transparent? Is the procedure fair? Is the reasoning convincing? Is the procedure too expensive? Is the procedure too slow? Who should the judges be? A lawyer or a layman or a mixture of both lawyers and laymen? A single judge or a college? A specialised judge, a non-specialist? Should judges have training? Should they be full-time or part-time? Who appoints the judges? According to what system? Is that procedure itself open and transparent? What is the tenure of the judge? Is it for life or some other period? And if so, what is the maximum/minimum desirable period? What should the procedure be? Should it be a common law procedure, the kind I have mentioned? A civil procedure? Should it be written? Should it be oral? Should it be inquisitorial? Should it be adversarial? You can go on with many of these questions. Just let me tell you what we have done and I can tell you that with all the confidence of a president of a court that not yet has had a case to decide.

In the United Kingdom the new Appeal Tribunals is formally formed part of The Competition Commission, which is confusing for you as well as for me because the Competition Commission is a new name for the old MMC – Monopolies and Mergers Commission – which investigates and reports on competition matters which are referred to it by the Government, according to a public interest test. But the Appeal Tribunals are in fact quite separate from that activity, and constitute a quite separate jurisdiction, a court which is responsible for hearing appeals against decisions by cartel authorities and regulators. You may know that we have in fact six competition authorities in the United Kingdom, somewhat excessive as you may feel. There is the Office of Fair Trading, which of course is the principal one, and also the regulators in the privatised industries of electricity, gas, telecom, railways and water. All those have power now to enforce our new national law, which came into force in March of this year, which is based on articles 81 and 82 of the Treaty. The jurisdiction of the Appeal Tribunals is United Kingdom wide, which for connoisseurs of these things is of some interest, because in the United Kingdom, as you probably

know, we actually have three legal systems, as well in England and Wales, in Scotland and in Northern Ireland, with sometimes significant procedural differences between them as United Kingdom jurisdiction. There is one full-time member, the President, and there is provision for making other appointments of persons whom will chair tribunals. The President is at the level of High Court Judge. There are 20 part-time members, appointed after a public recruitment competition, which produced more than 800 candidates. Of the 20 part-time members five are professors of economics or academic economics in one way or another, about another seven or so have a legal background, sometimes as lawyers in business, but a legal background. And others are businessmen or persons who have been active in public service of various kinds. The tribunals will sit in panels of three, chosen by rotation, and I suspect that on many panels there will be one economist, one lawyer and one other lay member. For those of you who are interested in such things four out of the 20 are ladies and two out of the 20 come from ethnic minority communities. As far as tenure is concerned the term of the President is on an automatically renewable basis until the retirement age of 70 is reached, and the term of the members is de facto eight years. Two terms of four years each with automatic renewal; removal is only on grounds of misbehaviour or incapacity on the recommendation of The Lord Chief Justice.

What is the jurisdiction? There is a full appeal on the merits, so it is effectively a rehearing with power to reformulate the decision, and will involve a full review of the case. Appeals can be introduced by addressees of the decision or in certain cases by third parties.

What is the general procedure? This is set out in our rules of procedure, but it is also now summarised in a little book we have produced called Guide to Appeals under the Competition Act.

This model, in British terms if you like, represents a certain amount of innovation because it is a real attempt to merge civil or common law and common law procedures. As you probably know the traditional English legal court tradition is based on an oral procedure, everything being developed orally, oral evidence, oral speeches etc. etc. It goes back many centuries and of course it is changing but it is still essentially based on an oral procedure. This procedure is based, as with the Court of First Instance in Luxembourg, on a written procedure in terms of an application and then a written defence. Unless the Tribunal gives permission, the written pleading stops there. So we have not got a reply and a rejoinder as you have in Luxembourg. My experience in Luxembourg of those documents was that such pleadings seldom added anything of value and tended to prolong the proceedings a very considerable time. Talking of prolonging the proceedings, we have given some fairly strict guidelines as to how long the written pleadings

are supposed to be. We have exhorted the parties to keep the pleadings, the written pleadings, to a minimum. This is a matter of guideline, not a matter of rule but we are determined to avoid the problem of paper saturation that is affecting all jurisdictions, with parties putting in enormously long written briefs, sometimes not at all well structured and extremely repetitive, which is a very bad practise that has to be suppressed, so the pleadings here are intended to be short and to the point.

Four weeks after the introduction of the appeal, a case conference is held between the parties and the Tribunal. It may be by that stage that the competition authority, normally the Office of Fair Trading, has not yet even put in its defence but once we have the application it is possible to come to grips at the case, to hold the case conference to decide certain procedural matters, in particularly where the proceedings are going to take place – in England, Wales, Scotland, Northern Ireland whatever – the main issues likely to be contentious, the timetable for the case, when the hearing is liked to be and so forth and so on. The Tribunal will give guidance to the parties as to what the main issues are and on what points it wants to hear argument. So it is very much a hands-on procedure, and those kinds of case conferences will take place regularly until the oral hearing is reached. The oral hearing itself will, I hope, follow as close as we can the Luxembourg pattern, a structured hearing, time limits for speeches, questions from the court and a concentrated effort to get to the bottom of the case rather than a meandering debate that may go on for some days. There is however one very important aspect which is in the pure common law tradition, which is the question of fact-finding and in particular the question, where you need it, of oral evidence from witnesses and in some cases oral evidence from experts. We shall in case of disputed facts and disputed expert evidence have cross-examination, in the traditional way, cross-examination by the parties of the respective witnesses under the control of the court. Of course in the civil system in its purest form, the one we have in Luxembourg, when it gets to the question of evidence by witnesses it is the court that conducts the cross-examination. The parties themselves sit on the sidelines and can not themselves ask questions without permission of the court. The court does it. It is quite exhausting from the point of view of the court and may well be that the court is not best placed to do it because it is really the parties who know the case, know the points they want to put and are in a position to cross-examine the witnesses. So I hope we have tried to combine the intellectual strengths of the civil law system with the fact-finding regime of the common law. There is a provision for dissenting opinions as so you can decide a case 2-1. I suppose the President or Chairman could find himself in a minority in that respect.

I have announced a target timetable for completing appeals which in simple cases is to be at least initially no more than six months. I found that when I made the translation from the bar to the bench a few years ago, the biggest difference was that suddenly there were no deadlines, there was no client demanding something by yesterday, there was no court saying that time runs out by four o'clock this afternoon etc. You had all the time in the world as a judge. It doesn't seem to me that that is completely right. The court should as well as everybody else have a deadline, so we have imposed deadlines on ourselves. We have also introduced a training programme. Richard Whish has been helping us with part of it. Other economic experts have been helping us with other parts so we have been covering procedure, we have been covering law, we have been covering economics, we have been covering human rights, all those matters. So I hope we will all finish up with a tribunal able to meet the challenges ahead. There is an appeal from the decisions of the Tribunal on a point of law, only on the amount of the penalty to the courts appeal of the respective jurisdictions at the next level up. You can choose among a large number of available models. If you permit me I come back in a few years time and let you know whether the one we actually chosen was a suitable model or not.

11 Detecting collusion among bidders in auction markets

Robert H. Porter¹

In this paper, I describe factors that facilitate or inhibit collusive schemes among bidders in auction markets, as well as circumstances where detection is possible. In any market, firms have an incentive to coordinate their decisions and increase their collective profits by affecting market prices. Detection and deterrence of collusion are a long-standing antitrust problem. Collusion in this instance means explicit, as opposed to tacit, cooperation. It includes circumstances where some firms act in unison to raise the prices that they charge buyers in procurement auctions, or to lower the price that they pay to acquire goods or services, or to otherwise inhibit competition. (To avoid confusion, in this paper I will henceforward discuss collusion by potential buyers, as opposed to collusion by potential sellers in a procurement auction. Buyers seek to lower the prices they pay, whereas sellers seek to raise the prices they receive.) These actions are usually surreptitious, either because they are illegal under antitrust laws, or because they are most effective if they are kept secret from the intended victims. I describe some results from the theoretical literature, and discuss a number of recent empirical studies.

Auctions have been an important market trading process for some time. When there are many market participants, an auction can be an effective price discovery process. With the rise of Internet commerce, under which market participants can be assembled more readily, the importance of auctions may increase. For example, many business-to-business (B2B) markets are being organized as auctions, and consumer-to-consumer sites such as eBay employ auction trading mechanisms.

In many social settings, cooperation is beneficial, and should be encouraged. I take the perspective of industrial organization economists, or that of antitrust policy, that collusion among firms, if successful, can benefit the participants at the expense of their suppliers. From society's perspective, the losses usually outweigh the benefits. For example, if a bidding ring lowers the prices they offer to pay for products or services, relative to competitive levels, then sellers suffer a loss, and

¹I am grateful to the National Science Foundation for financial support.

trade will be less likely to occur. Further, potential sellers will be less inclined to offer their products or services in the future. There will be a welfare loss, as both current and potential future gains from trade are foregone.

One focus of my discussion is how to determine when collusion is occurring. Collusive schemes are often illegal, and a problem faced by antitrust authorities (such as the U.S. Department of Justice) is to detect their presence. Alternatively, antitrust authorities may pursue policies that inhibit successful collusion, by altering characteristics of the economic environment, such as pursuing an active merger policy. Further, the potential suppliers of the ring can alter the rules of the auctions they employ in response to the presence of collusion.

There is evidence of collusion in many auction markets. Examples include highway construction contracts, school milk delivery, and timber auctions. This is not too surprising, since bidders are collectively better off colluding, thereby reducing the transfer to the seller. Collusion can take many different forms in auctions. The form often depends on the auction rules and characteristics of the environment (Hendricks and Porter, 1989). But all bidding rings face a set of typical cartel problems.

It is useful to think about the operation of a collusive scheme from the perspective of the participants. Most cartels encounter operational problems. It is the manner in which a conspiracy deals with these problems that often facilitates the detection of the scheme. In some instances, one can do more than just look for direct evidence of the exertion of market power, such as high and persistent profits.

I will focus on five potential cartel problems, and provide examples of bidding conspiracies that revealed their presence in the process of addressing the problems. I offer no general detective prescription, apart from the idea that the individual circumstances of the market in question often suggest what a fruitful line of inquiry might be. Case studies are inevitable.

As a final remark by way of introduction, I should note that auctions are an attractive trading mechanism, relative to posting prices or employing bilateral contract negotiations, in situations where there is uncertainty. There could be uncertainty about the intrinsic value of the object under consideration, or common components of bidders' valuations, such as how much oil or gas will be found under an offshore lease, that affect all potential buyers' willingness to pay. If buyers have more information about this intrinsic value than the seller, an auction is a competitive mechanism that can be employed to elicit this information, to the extent that bids reveal information concerning the willingness to pay of individual sellers. Under some circumstances, the bidding process acts to aggregate the bidders' collective informa-

tion, and the winning bid will reflect this information. There could also be uncertainty about which prospective buyer values the good the most, for example if bidders differ in their costs of conducting exploratory drilling on an offshore lease. A well-designed competitive auction process will also identify the buyer willing to pay the most.

Problem one: Detection by antitrust authorities or by the victims

A time-honored method of detecting collusion is finking by a dissident ring member or an ex-employee, or the complaints of customers. Such evidence has obvious attractions, but one should be suspicious of complaints by rival firms not party to the conspiracy. Rivals typically gain from higher prices, and they suffer from more intense competition. Thus, an agreement that harms rivals, such as an R&D joint venture that lowers costs of the participants in the venture, may be beneficial to society. Rivals could also suffer if a bidding agreement pooled the information of the participants about the common components of value.

Antitrust laws that prohibit side payments or direct communication between conspirators increase the chances of there being a dissident. I return to this point below.

A bidding ring wants to avoid detection by the antitrust authorities if their discussions are illegal, and by a seller who can adopt a different selling mechanism in response. For example, a seller could raise the minimum bid, or keep bids secret to make it harder for the ring to maintain discipline. If the ring is not all-inclusive, it may also want to keep its presence unknown to other bidders.

Absent the direct evidence of a dissident, a conspiracy may be difficult to detect. For example, conspirators may act to create the appearance of competition in order to avoid detection. Bidding rings may submit phony, or complementary, bids that are designed merely to be lower than the serious bid submitted by the ring. Then only the highest bid from the ring is serious. But phony bids, unlike serious bids, may not be related to the likely profits of the bidder in the event that it wins. Porter and Zona (1993) describe a bidding ring involving highway-paving jobs on Long Island in New York. A subset of the firms participated in pre-auction meetings in order to assign low bidding privileges for specific procurement contracts. The conspirators often submitted complementary bids above the low bid. We show that the order of the bids submitted by non-conspirators was related to cost measures. The lowest non-conspirator bid was most likely to be submitted by the firm with the lowest cost. In contrast, the order of the

higher bids submitted by ring members was not correlated with the same cost measures.

In addition to creating the appearance of competition, complementary bids may also be intended to manipulate the expectations of the buyer. Feinstein, Block and Nold (1985) note that many agencies estimate the cost of projects on the basis of bidding on similar past projects. Multiple phony bids close to a relatively high bid may lead an unawares buyer to think that costs are higher than they are. They analyze data from North Carolina highway construction auctions that suggest that the contractors were indeed manipulating the information received by the buying agency.

Problem two: Secret price cutting

There is no honor among thieves. If there is a conspiracy to lower bids below competitive levels, then there is a temptation to cheat on the agreement, if defection is unlikely to be detected by rivals and subsequently punished. That is, unilateral deviation from collusive actions is profitable, at least in the short run.

To succeed, a ring has to keep its members from deviating, by ensuring that it is in each of the conspirator's self-interest to adhere to the agreement. In the language of mechanism design, the problem is to devise a mechanism to divide the spoils and select the ring's bidder that is incentive compatible and individually rational. The specification of these constraints, and the extent to which they are binding, will depend upon the auction rules and on the characteristics of the environment. Robinson (1985) points out that a ring has an easier time colluding in second price sealed bid (SPSB) or English auctions. In an SPSB auction, the highest bidder wins, but pays the bid of the second highest bidder, or the minimum bid if nobody else submits a bid. If the serious ring bidder has the highest valuation, and if the serious bidder bids his true valuation, the other members cannot gain from deviating. The success of the ring then depends on how many potential bidders refrain from bidding, thereby lowering the expected price paid by the serious bidder when it wins. Similarly, in an English (ascending) auction, the serious bidder only needs to outbid other submitted bids. There is then a short run problem only if the serious bidder does not have the highest valuation among the ring members.

In contrast, collusion is more difficult in first price sealed bid (FPSB) auctions where the serious bidder typically bids below the valuation of other ring members. The other members could then win the auction at a profitable price. These examples assume that the heterogeneity among bidders is due primarily to idiosyncratic differences in valuations.

More collusive outcomes are possible when bidders know that they will be competing against each other in subsequent auctions. In that case, the ring can credibly threaten to punish noncompliance in a current auction by expelling the deviator from the ring or by dissolving the ring. By conditioning their behavior on the past actions of other firms (or their inferences about these actions), they can induce more cooperative outcomes. Relatively aggressive behavior is dissuaded by the threat of “punishments” in the future. As long as firms value future profit streams highly enough, and the threatened punishment is severe enough and likely enough to occur, these schemes will induce relatively collusive behavior.

Collusion will be abetted by any practice, such as information gathering and dissemination by a trade association, that speeds the detection of, and hence response to, defections from an agreement. One role of trade associations is to make pricing and sales figures publicly available as quickly as possible. This facilitates the rapid detection of price chiseling.

Detection is also easier if the bidding process is relatively simple. For example, auction rules that stipulate contract terms in fine detail can reduce the dimension of competition to price alone, and it will be easier for a cartel to determine when an agreement is being violated.

If rival cheating can be detected, then the cheater can be singled out for punishment. A legal cartel could require that defectors sacrifice a bond with, or pay a fine to, a trade association. Alternatively, bidding wars in the defector’s territories can be an effective punishment. Such threats are often sufficient to inhibit cheating, and so there may not be any need to resort to the threatened punishment.

In a multiple-unit simultaneous ascending bid format, such as the mechanism employed by the US Federal Communications Commission (FCC) to sell spectrum for PCS (personal communications services), punishments can be wide-ranging. Defections in the bidding for one object can induce responses elsewhere. An example from the FCC spectrum auctions is given below.

In a multi-unit uniform price auction, price is determined by a market clearing condition, where available supply equals demand. An example of this mechanism is the United Kingdom and Wales electricity auction market. (See Wolfram [1998, 1999] for an account.) Bidders can implicitly make it costly for rivals to steal market share by bidding low prices for inframarginal supplies. In the example a generating unit is inframarginal if it is likely to be called on to supply power, but unlikely to be decisive in determining the market price. In this instance, a discriminatory auction, in which each supplying unit is paid the amount of its bid, might induce more competitive bidding.

A more basic cartel problem arises if firms cannot distinguish between cheating and adverse economic conditions. For example, if firms do not observe rivals' valuations directly, but only their bids and who won the auction, a rival may bid aggressively either because they have a high valuation, or because an agreement to bid a fixed fraction of valuations (say) has been broken (Stigler, 1964). Then one may have to respond to an unexpectedly low market share by resorting to a widespread bidding war. If individual costs are variable enough, there will be occasional breakdowns of collusion, even if no one actually cheats. Bidding wars in response to unexpectedly poor win rates are necessary to keep the incentives to cooperate intact (Green and Porter, 1984).

Trade associations might allocate market shares to their members, and keep records of auction outcomes. However, if market shares are relatively volatile and the seller does not reveal the winning bid amount, secret over bidding may be difficult to detect. Bidding wars may then be a reaction to unusually volatile market shares.

Problem three: Entry

If firms succeed in raising prices above competitive levels, and therefore earn high profits, then they invite entry. A bidding ring has to be able to control entry to prevent outsiders from capturing the benefits of collusion.

Legal restrictions on entry, sanctioned and/or enforced by the government, can be an effective barrier to the entry of serious potential competitors. Examples include restrictions on foreign bidders, or the stipulation of minimal qualifications to perform a service (say via certification or a pre-qualification procedure).

Illegal sanctions may also be available. For example, some industries dominated by organized crime may use criminal methods to deter entry. In New York garbage hauling, entrants have had their trucks blown up, or in one instance found the severed head of a dog in the mailbox. A note in its mouth read "Welcome to New York" (The Economist, March 12, 1994).

Another possible response to entry is predatory pricing. Incumbent firms may bid aggressively intending to drive out entrants, and plan to lower bids after exit is induced. There is a literature that discusses the issue of how one can determine whether prices are predatory, or merely a normal competitive reaction to entry and increased competition. Predatory pricing may be used in order to lower the acquisition costs of competitors, in the course of acquiring a dominant position. Predatory pricing can also be used to deprive rivals of the cash flow necessary to fund expansion, thereby limiting the size of firms that remain independent. Predatory pricing is more likely the weaker the

entrant, where weakness derives from inexperience, a small scale of operations, or shallow pockets.

Asymmetries in information or payoffs can act as a barrier to entry. In general, bidders likely to have high valuations or better information have an incentive to collude, and they will not want to share gains with disadvantaged firms if they do not pose a major competitive threat.

If there is entry, and the entrants are not party to the collusive agreement, then the non-inclusive nature of the cartel may lead to evidence of its existence. As noted above, Porter and Zona distinguish complementary bids by a ring from non-winning bids submitted by a competitive fringe. Hendricks and Porter (1988) describe another example in our study of drainage auctions. An oil or gas lease is said to be a drainage lease if there has been prior exploration in the area. In that instance, the firms with prior drilling experience will have an informational advantage over firms that have access only to seismic data. In the offshore oil and gas drainage auctions, the identities of the firms owning the mineral rights on neighboring tracts ("neighbors") are known, and their numbers limited by the number of tracts previously sold and explored. Neighbors can gain from coordination, and they do not have to worry about the entry of non-neighbors dissipating all of the gains. We find that neighbors earn high profits, whereas non-neighbors approximately break even. Despite relatively high overall returns, there is less entry (i.e., fewer bids are submitted per tract) than on wildcat leases, where bidders share similar information sources. The lower entry rates on drainage leases are consistent with asymmetries of information acting as an entry barrier.

If neighbors bid non-cooperatively in the drainage auctions, then there should not be entry by non-neighboring firms, because the latter do not have access to private drilling information. Yet there is entry by non-neighbors. Further, non-neighbors' bids are independent of the number of neighboring firms, rather than a decreasing function as winner's curse considerations would dictate. In addition, there are often multiple bids from the neighbors on a single drainage tract, yet their returns are an increasing function of the number of their bids submitted. Finally, the highest neighbor bid is independent of the number of neighbors, and their average bid level is a decreasing function of this number. This latter fact is consistent with the neighbors submitting only one serious bid, and the probability of submitting complementary bids being an increasing function of the number of neighboring leases in order to create the appearance of competition.

Problem four: Reconciliation of disparate interests or division of the spoils

A cartel may face internal political problems. An important feature of many collusive agreements, and a determinant of their success, is the need to reconcile disparate interests. Interests may differ for a number of reasons. For example, firms may have adopted technologies of differing vintages for historical reasons, they may serve non-overlapping and heterogeneous customer bases, or their payoffs may be subject to imperfectly correlated shocks. Side payments can solve some internal problems, but they may not be legal. Also, the contractual terms associated with side payments may not be enforceable. An unhappy conspirator whose loyalty cannot be purchased is more likely to report the collusion to antitrust authorities.

As Cave and Salant (1987) demonstrate in their study of U.S. agricultural marketing agreements, even legal cartels, despite having broad powers to exclude potential entrants and to punish members who overproduce, may be unable to achieve joint profit maximization. They also show that voting within the cartel will typically pit smaller members against larger ones, when size differences reflect underlying disparities in costs or capacities. (Cave and Salant [1995] provide a more detailed theoretical discussion.) In a related vein, Wiggins and Libecap (1985) describe how information asymmetries can disrupt coordination efforts, in the case of oil field unitization agreements.

Collusion is frequently observed in auctions where bidders differ in their idiosyncratic willingness to pay, as opposed to differences in information concerning common components of valuations. Examples include highway construction contracts (Porter and Zona, 1993), school milk delivery (Pesendorfer [2000] and Porter and Zona [1999]), and timber auctions (Baldwin et. al., 1997). In each of these examples, the heterogeneity in bidder valuations is due primarily to differences in costs that are arguably idiosyncratic to each bidder. The cartel's problem is to devise a mechanism to divide the spoils and select who is going to receive the contract. In doing so, the cartel has to overcome an adverse selection problem. If the conspirators do not know how much each of their fellow cartel members is willing to pay for the item being auctioned, then each member will want to exploit this private information to argue for a bigger share of the spoils.

Conspirators often assign one firm to represent the ring in the bidding in a separate knockout auction among the group before the seller's auction (Graham and Marshall, 1987). In a prior knockout auction, the ring members bid for the right to be the sole bidder in the seller's auction. The bidder who bids the highest amount wins this right, and the winner pays an amount to the other bidders based on

the bids submitted. If the seller knows that a knockout auction has preceded the sale, it should set a higher reserve price. Therefore, it is in the interest of the ring to keep its meeting secret. According to Preston McAfee, one conspiracy was investigated by the U.S. Department of Justice after a bidder submitted an envelope containing his own bid plus his notes from a pre-auction meeting.

If an all-inclusive cartel uses side payments, it can design a pre-sale auction knockout to induce each member to tell the truth, and to achieve full efficiency by awarding the item to the member who has the highest valuation (Graham and Marshall [1987], Mailath and Zemsky [1991], and McAfee and McMillan [1992]). Furthermore, each cartel member's expected payment exceeds the payoff from non-cooperative bidding. Consequently, the bidders prefer the cartel mechanism to bidding non-cooperatively in the seller's auction.

An alternative to a pre-sale knockout auction is a post-sale knockout, such as the one used by a turn of the century bidding ring involving rare book dealers in England. After one large estate sale, the ring held a series of knockout auctions. Successively smaller subsets of the dealers conspired to deprive the seller, and then their fellow conspirators, of some of the gains. The book dealers differed according to experience and scale of operation, and the larger and more experienced dealers stayed longer in the knockout process. The participants in the various knockout auctions shared the price increases over prices in the previous round. The original seller received less than 20 percent of the final settlement prices. Why did the larger ring members conspire with the smaller members? If they had not, the larger dealers would have had to outbid the smaller dealers at the original auction, and it would be cheaper to share some of the gains with them. But it is also in their interest to share only enough to buy the loyalty of the smaller dealers, and not the full difference between the original purchase price and what the larger dealers were willing to pay. (Porter [1992] provides a brief account.)

Most early studies identified behavior that is difficult to reconcile with a non-cooperative bidding. An extreme example of the complementary bidding described above involves the submission of several identical bids. Mund (1960) and Comanor and Schankerman (1976) describe several instances of identical bids "independently" submitted in government procurement auctions. In 1955, five companies submitted identical sealed bids of \$108,222.58 for an order of 5,640 one hundred capsule bottles of antibiotic tetracycline (Scherer and Ross, 1990, p. 267). The submission of identical bids is an unlikely non-cooperative equilibrium if there are any differences in information or valuations across bidders. But such behavior can be reconciled as an optimal allocation mechanism for weak cartels when valuation differences reflect

idiosyncratic factors. McAfee and McMillan (1992) show that it may be optimal for a weak cartel (that is, one that cannot make side payments) to submit many identical bids at the reserve price, and rely on the auctioneer to randomly select among them.

Comanor and Schankerman show that rotating bid arrangements are more stable. Here firms take turns submitting “serious” bids for the ring. The serious bids may be optimized against the government’s acceptance rule, or against the other bidders who are not participating in the ring. Other members may submit phony or complementary bids to create the appearance of competition.

Territorial division of winning privileges, or division based on historic patterns of success (e.g., keep old clients), is another way in which rings can coordinate bids. Firms could employ a scheme that assigns customers or territories to the participants, and then grant individual firms wide latitude within their own territories. In the recent FCC spectrum auctions, a territorial division was achieved within the bidding process itself. The FCC employed a simultaneous ascending bid procedure, in which bidding was kept open on all licenses throughout the auction, and firms with enough eligibility could switch between licenses. Some bidders used trailing digits on their bids to communicate their future intentions. For example, one response to a new bidder in one’s territory was to outbid that bidder on at least one other license where it held the standing high bid. The response bid’s last three digits would be the identifying code of the original market, and the intended message was the offer to not compete on this license if they stay out of your territory. No overt communication is involved, unless the parties need to resolve how to interpret bid signals, and a territorial allocation can be achieved at relatively low bid prices. The auction rules could be amended to prevent this sort of signaling, for example by requiring new bids to be a fixed amount or fraction higher than the current high bid. There could also be a fixed ending time to the auction, in which case it would not be possible to retaliate after that time.

Alternatively, the ring can use external randomizing devices to assign bidding privileges and escape detection. An extreme example occurred in the 1950s, when General Electric and Westinghouse assigned low bid privileges for electrical equipment contracts based on a phases-of-the-moon system (Smith, 1961).

More typical are the New York trash haulers, whose associations “carved up the city, using a system of ‘property rights’ ... Each carting company ‘owns’ buildings where their customers are located. If a company that is not a member of the trade associations tries to offer a lower price for a building’s business, the associations scare off the interloper with arson and physical violence ... If a company inside the

cartel takes a site away from another hauler in the cartel, ... the associations force the offending company to pay the old carter up to forty times the monthly pickup charge. ... [An] undercover police detective posing as a carting executive paid more than \$790,000 in 'dues' to the associations and in compensation to other carters. In exchange, he won the right to pick up garbage at stops where he had submitted the lowest bid." (New York Times, June 23, 1995.)

Pesendorfer (2000) argues that a weak conspiracy that cannot make side payments may be forced to maintain relatively constant market shares, despite some losses from not allocating bidding rights to the low cost firm, in order to maintain internal discipline. He shows that, if there are many items being sold, the ring can achieve approximate efficiency via a ranking mechanism. That is, members rank items, and items are assigned on that basis. The ring doesn't achieve full internal efficiency, as minimal market shares must be guaranteed to ensure that participation constraints are satisfied. He compares Florida and Texas bid rigging schemes for providing school milk, and shows that market shares were less stable in Florida, where dairies used side payments.

The constancy of market shares or geographical specialization, while consistent with a collusive assignment, are not in and of themselves evidence of collusion. There is a tendency to view bid rotation or incumbency as evidence of presence of collusion. However, these patterns can be consistent with non-cooperative bidding. For example, bid rotation is a natural outcome in auctions of highway construction contracts where bidders' cost functions exhibit decreasing returns to scale. Firms with idle capacity are likely to win the contract, but having won the contract, are less likely to win another until some existing contracts are completed (Porter and Zona, 1993).

Similarly, incumbency patterns can reflect unobserved asymmetries among bidders. Those who won in the past may have done so because of location or other advantages that persist through time. Incumbents may have the advantage of lower costs due to experience or an advantage with buyers who are reluctant to switch suppliers (Porter and Zona, 1999). An empirical challenge is to develop tests that can discriminate between collusive and non-cooperative explanations for rotation or incumbency patterns.

If the bidders know that they share common valuations, a bidding ring's internal allocation problem is much simpler. The cartel does not have to worry about selecting a bidder if all members value the item identically. As a result, in these situations bidding rings can adopt division rules in which all members share equally in the spoils. Given this sharing rule, cartel members have no incentive to misrepresent their information. They share a common goal, which is to bid only when the

expected value of the item conditional on the pooled information exceeds the reserve price. The problem with such agreements, however, is that the expected payment to cartel members may not exceed the amounts they can expect to earn (conditional on their information) by bidding alone in the seller's auction. A bidder, who has favorable information when commonly available signals are pessimistic, may be able to win the lease by bidding slightly above the reserve price. There will be a somewhat higher price paid to the seller, but the surplus is not shared with other firms.

The sharing rule can be implemented without transfers by having every member submit the same bid (e.g., the reserve price) and letting the seller randomly select the winner. However, participation constraints can be a problem. Hendricks, Porter and Tan (2000) show that an efficient cartel mechanism may not exist under these circumstances. In addition, the ring may have to worry about a moral hazard problem, since each member has an incentive to free ride on the information gathering activities of other members. These difficulties may explain why collusion appears to be less frequent in common value environments than in environments where bidders' intrinsic valuations differ.

This intuition may explain the surprisingly low incidence of joint bidding among firms with the highest participation rates in the auctions of federal offshore oil and gas leases. Solo bidding was the dominant form of bidding for most of the seven most active participants. Joint bids involving pairs of these seven firms represented less than 15% of all their bids. Furthermore, if these firms bid jointly, they did so almost always in pairs.

However, solo bidding does not imply the absence of collusion. In testimony before Congress in the mid 1970s, Darius Gaskins of the Department of Interior argued that the collusive effects of joint ventures should not be measured solely in terms of tracts receiving joint bids. The negotiations to bid jointly could allow partners to coordinate their solo bids. The cartel could, for example, hold a first-price knockout tournament on each tract in a specific area to determine who valued which tracts more highly than others, and allocate the tracts accordingly. If this allocation does not achieve an equitable balance among its members, firms with larger allocations could agree to bear a larger share of the costs of drilling the area or, if oil is discovered and the area unitized, a smaller share of production. Mechanisms involving side payments could give optimistic bidders a stronger incentive to participate. The potential gains from forming a cartel appear to be substantial. The stakes are large, and the risks significant. By pooling geological data and expertise in interpreting the data, firms could reduce the risk of buying dry leases and, by pooling financial resources,

they can bid for more leases and diversify away more of the tract-specific uncertainties.

Hendricks, Porter and Tan (2000) study data from federal oil and gas wildcat auctions off the coasts of Texas and Louisiana. We document a positive correlation between the incidence of joint bidding and the value of tracts. This correlation probably reflects the incentive for firms to find financial partners on tracts where the high bid is likely to be large. However, it may also reflect the fact that potential bidders are more likely to know their competition (i.e., who intends to bid) on high value tracts.

We also find evidence of bid coordination by bidders who bid jointly in a sale. In particular, bidders are unlikely to submit competing solo bids if they have submitted a joint bid in another region in the same sale.

Problem five: Responding to new circumstances

As valuations or competition from other bidders change, a bidding cartel may want to adjust the agreed-upon bids or bidding rules. But how can changes be coordinated if firms cannot communicate? One solution is to designate a price leader. For example, the leader could announce an intention to bid higher prices thirty days in advance, where the increase would be implemented only if its putative rivals then announced that they would follow suit. Advance notices can be a substitute for formal meetings, which may be illegal or costly to arrange. They also ensure some degree of unanimity.

More generally, how prices respond to competition or valuation changes can differ for competitive and collusive industries. One might be able to distinguish between competitive and collusive behavior by looking at bid patterns and market shares before and after a merger or a plant closing, say. Without such changes, it can be difficult to tell whether bidding patterns are consistent with collusion or competition. There are statistical methods for distinguishing between the two when there are changes over time or across markets.

Porter and Zona (1999) provide evidence that the bidding behavior of some Ohio dairies for school milk contracts in the 1980s was more consistent with collusion than with competition. For example, several of the dairies exhibit patterns of both local and distant bid submissions. That is, they submit bids relatively near their plants and they also submit bids well beyond their local territories. Our econometric analysis of bidding levels shows that the distant bids by the three dairies in Cincinnati tend to be relatively low. In contrast, other dairies' bids are an increasing function of the distance from the school district to the firm's nearest plant. These features of bidding are consis-

tent with territorial allocation of nearby school districts by dairies with plants in the Cincinnati area to restrict competition, and relatively competitive bidding at more distant locations, which were perhaps outside the area of territorial allocation. If bidding for local districts had been competitive, local bids should have been lower than distant bids, because shipping costs were lower and because the Cincinnati area has many potential local suppliers. The relationship between bidding behavior and distance is notable, because processed milk is relatively expensive to ship (its value is low relative to weight), and therefore competition is localized.

Conclusion

The preceding discussion has just scratched the surface of the issues involved, but I hope that it indicates how research is being conducted in this area, and what some of the issues are.

In this paper I have discussed collusion among bidders in auctions. There are three other forms of auction market manipulation that may also blunt the incentives to engage in trade, and hence compromise the social value of the market institution. First, the recent investigation of Sotheby's and Christie's indicates that collusion among bidders is not the only potential antitrust concern in auction markets. To the extent that the market for providing auction services is concentrated, there may be collusion among auctioneers to raise service fees to potential sellers or buyers.

Second, recent events indicate that eBay auction rules can be manipulated by sellers who unilaterally submit phony bids on their own items, in an attempt to obtain higher prices. Also, groups of sellers can inflate their eBay seller rankings by giving each other glowing reviews for service and product quality. These activities might best be characterized as fraudulent, rather than raising antitrust concerns. But they also reduce faith in the institution.

A third form of manipulation is the corruption of the auctioneer by one or more bidders, when the auctioneer is an agent for the seller. For example, in a sealed bid auction a bidder could bribe the auctioneer to reveal the other bids. Armed with this knowledge, the bidder would not have to bid more than necessary to win. (For a recent theoretical analysis, see Burguet and Perry (2000).) Concerns about potential corruption of the bidding process are an important component of auction design, such as public procurement rules that limit the discretion of the auctioneer.

References

Athey, Susan, and Kyle Bagwell, "Optimal Collusion with Private Information," MIT, 2000.

Bajari, Patrick, "Econometrics of the First Price Auction with Asymmetric Bidders," Stanford University, 1998.

Bajari, Patrick, and Lixin Ye, "Detecting Collusion in Procurement Auctions," Stanford University, 2000.

Baker, Jonathan, and Daniel Rubinfeld, "Empirical Methods in Antitrust Litigation: Review and Critique," *American Law and Economics Review*, 1 (1999), 386-435.

Baldwin, Laura, Robert Marshall, and Jean-Francois Richard, "Bidder Collusion at Forest Service Timber Auctions," *Journal of Political Economy*, 105 (1997), 657-99.

Burguet, Roberto, and Martin Perry, "Bribery and Favoritism by Auctioneers in Sealed Bid Auctions," Rutgers University, 2000.

Cave, Jonathan, and Stephen Salant, "Cartels that Vote: Agricultural Marketing Boards and Induced Voting Behavior," in *Public Regulation*. Ed., Elizabeth Bailey. Cambridge, MA: MIT Press, 1987.

Cave, Jonathan, and Stephen Salant, "Cartel Quotas Under Majority Rule," *American Economic Review*, 85 (1995), 82-102.

Comanor, William, and Mark Schankerman, "Identical Bids and Cartel Behavior," *Bell Journal of Economics*, 7 (1976), 281-6.

Cramton, Peter, and Thomas Palfrey, "Cartel Enforcement with Uncertainty about Costs," *International Economic Review*, 31 (1990), 17-47.

Cramton, Peter, and Thomas Palfrey, "Ratifiable Mechanisms: Learning from Disagreement," *Games and Economic Behavior*, 10 (1995), 255-83.

Cramton, Peter, and Jesse Schwartz, "Collusive Bidding: Lessons from the FCC Spectrum Auctions," *Journal of Regulatory Economics*, 17 (2000), 229-52.

Feinstein, Jonathan, Michael Block and Frederick Nold, "Asymmetric Information and Collusive Behavior in Auction Markets," *American Economic Review*, 75 (1985), 441-60.

Gertner, Robert, "Revenue and Efficiency Differences Between Sequential and Simultaneous Multiple-Unit Auctions with Limited Competition," University of Chicago, 1995.

Graham, Daniel, and Robert Marshall, "Collusive Bidder Behavior at Single-Object Second-Price and English Auctions," *Journal of Political Economy*, 95 (1987), 1217-39.

Green, Edward, and Robert Porter, "Noncooperative Collusion Under Imperfect Price Information," *Econometrica*, 52 (1984), 87-100.

Hendricks, Kenneth, and Robert Porter, "An Empirical Study of an Auction with Asymmetric Information," *American Economic Review*, 78 (1988), 865-83.

Hendricks, Kenneth, and Robert Porter, "Collusion in Auctions," *Annales d' Economie et de Statistique*, 15-16 (1989), 217-30.

Hendricks, Kenneth and Robert Porter, "Joint Bidding in the Federal OCS Auctions," *American Economic Review*, 82 (1992), 506-511.

Hendricks, Kenneth, Robert Porter and Guofu Tan, "Joint Bidding in Federal Offshore Oil and Gas Lease Auctions," Northwestern University, 2000.

Hewitt, Cynthia, James McClave and David Sibley, "Incumbency and Bidding Behavior in the Dallas-Ft. Worth School Milk Market," University of Texas, 1993.

Krishna, Vijay, and John Morgan, "(Anti-) Competitive Effects of Joint Bidding and Bidder Restrictions," Princeton University, 1997.

Lanzillotti, Robert, "The Great School Milk Conspiracies of the 1980s," *Review of Industrial Organization*, 11 (1996), 413-58.

Lee, In, "Non-cooperative Tacit Collusion, Complementary Bidding and Incumbency Premium," *Review of Industrial Organization*, 15 (1999), 115-34.

Mailath, George, and Peter Zemsky, "Collusion in Second Price Auctions with Heterogeneous Bidders," *Games and Economic Behavior*, 3 (1991), 467-503.

McAfee, Preston, and John McMillan, "Bidding Rings," *American Economic Review*, 82 (1992), 579-99.

Milgrom, Paul, "Putting Auction Theory to Work: The Simultaneous Ascending Auction," *Journal of Political Economy*, 108 (2000), 245-72.

Mund, Vernon, "Identical Bid Prices," *Journal of Political Economy*, 68 (1960), 150-69.

Pesendorfer, Martin, "A Study of Collusion in First-Price Auctions," *Review of Economic Studies*, 67 (2000), 381-411.

Porter, Robert, "Review of *Anatomy of an Auction: Rare Books at Ruxley Lodge, 1919* by Arthur Freeman and Janet Ing Freeman," *Journal of Political Economy*, 100 (1992), 433-6.

Porter, Robert, and Douglas Zona, "Detection of Bid Rigging in Procurement Auctions," *Journal of Political Economy*, 101 (1993), 518-38.

Porter, Robert, and Douglas Zona, "Ohio School Milk Markets: An Analysis of Bidding," *RAND Journal of Economics*, 30 (1999), 263-88.

Robinson, Marc, "Collusion and the Choice of Auction," *RAND Journal of Economics*, 16 (1985), 141-5.

Scherer, F. M., and David Ross, *Industrial Market Structure and Economic Performance*. 3rd ed. Boston, MA: Houghton Mifflin, 1990.

Smith, Richard, "The Incredible Electrical Conspiracy," *Fortune*, 63 (April 1961), 132-80, and 63 (May 1961), 161-224.

Stigler, George, "A Theory of Oligopoly," *Journal of Political Economy*, 72 (1964), 44-61.

Wiggins, Steven, and Gary Libecap, "Oil Field Unitization: Contractual Failure in the Presence of Imperfect Information," *American Economic Review*, 75 (1985), 368-85.

Wolak, Frank, and Robert Patrick, "The Impact of Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," Stanford University, 1997.

Wolfram, Catherine, "Strategic Bidding in a Multi-Unit Auction: An Empirical Analysis of Bids to Supply Electricity in England and Wales," *RAND Journal of Economics*, 29 (1998), 703-25.

Wolfram, Catherine, "Measuring Duopoly Power in the British Electricity Spot Market," *American Economic Review*, 89 (1999), 805-26.

12 Cartel enforcement by the European Commission

Alexander Schaub

It is a great pleasure and an honour for me to contribute to session three of this conference on the effective enforcement and prevention of cartels and collusive behaviour.

This has been, as underlined several times already, a topic of increasing importance in the context of the strengthening of the internal market, of financial and business integration in Europe and in particular of globalisation, internationalisation of companies and it will occupy us certainly for quite some more time. You have already heard a lot about the harmfulness of cartels and of the difficulties of identifying, detecting and proving them. My aim this afternoon is to look at the possibilities of competition authorities and of the European Commission in particular to effectively uncover and punish them.

History

First some elements of history. Since the early days of the European competition policy the Commission has proved to be a committed detector of secret cartels. Already in the 1960's the first fines were imposed on the participants in the Quinine cartel and the Dyestuffs cartels. Encouraged by this early success the Commission continued to pursue other cases of similar magnitude in subsequent years. In the 1980's several important cases, including most of the large chemical producers in Western Europe, were investigated. The Commission found that price cartels had existed and that sensitive information had been exchanged by the producers of polypropylene, PVC and LDP. In each of these cases substantial fines were imposed on the participants. In 1991 the Court of First Instance largely upheld the decision in polypropylene. The decision in PVC on the other hand, was annulled on purely procedural grounds. (We have heard this morning a bit more about the context.) However, the Commission subsequently adopted a new decision, the PVC2-decision, confirming the analysis contained in the original decision, and the fines that have been imposed. This decision, again attacked by the parties, was upheld by the Court of First Instance. The initial annulment therefore only bought the companies involved a certain amount of time. The Commission continued in 1994

with prohibition decisions in three important cases, namely Steel beams, Cartonboard and Cement. The trend towards heavier penalties was maintained. All these cartels had similar features, joint price increases, co-ordinated price alignments, production controls and market sharing arrangements. The Court of First Instance largely upheld all these decisions, but made some important clarifications with regard to the Commission's procedural obligations, such as access to the file and the companies' rights of defence. Other spectacular cartel cases followed such as the Pre-Insulated Pipes case in 1998, also of some interest here in Sweden, the Steeltubes case in 1999 and very recently the Lysine case.

The Commission was able to detect all these important cartels on the basis of the powers of investigation provided for by Regulation 17, the principal regulation for the implementation of Articles 81 and 82 of the Treaty. It lays down a basic system of supervision and enforcement procedures which the Commission now has applied for over 38 years without any significant change. However, today reform is required as stated by Commissioner Monti in his opening speech. Our powers of investigation must be adapted to the realities that we face; otherwise they lose their bite. The reform of Regulation 17 is of vital importance to our fight against cartels. In particular a possibility to inspect private homes when it can be suspected that professional documents are kept there is in our view essential to the continued effectiveness of our enforcement efforts. Mr. Monti has mentioned this already and doubts have been expressed in the course of earlier discussions so there seems to be some interest in this question. Obviously, all the appropriate guarantees of a state of law would have to be foreseen in case of such modification, but I find it difficult to exclude such investigations as a matter of principle.

The existing system

Today I will however concentrate on the main features of the existing system. Our enforcement system differs substantially from that of the U.S. where cartels are punishable as criminal conspiracy under Section 1 of the Sherman Act. Regulation 17 provides for fines up to 10 % of a company's total turnover. It is expressly stated that these pecuniary fines are not of a criminal law nature. Furthermore the Commission has no jurisdiction on individuals and there is no possibility of a plea bargain. Whereas the U.S. investigations are normally conducted by a grand jury and in some cases with the assistance of the FBI (as you could see in yesterday's presentation of the videotape of the Lysine cartel, which I deeply regret we have missed). The Commission by contrast does not have the same extensive powers that are normally

associated with criminal law enforcement. Regulation 17 provides for two main powers of investigation: inspections and request for information, the so-called Article 11-letters. The Commission is not entitled to take oral evidence on oaths; written evidence therefore plays a paramount role in our procedure. For the purposes of detecting cartels the most important of the two powers (that I've just mentioned) is the power to carry out on the spot inspections under Article 14, somewhat romantically called dawn raids. Commission officials, the press sometime call them cartel hunters, inspect simultaneously the suspected companies, in most cases without prior warning. Inspections are conducted on the basis of a Commission decision, which is a binding legal act. However in some cases companies refuse to submit. In such cases it is necessary to ask the national competition authorities, which always co-operate in the execution of inspections to call in police assistance to overcome the opposition. In most memberstates a court order must be obtained before the police can intervene. To ensure the effectiveness of the inspection a Court order is therefore normally requested and obtained beforehand. The Commission usually follows up inspections with rather detailed requests for information. This possibility to claim information by written requests has proved itself to be very useful in our fight against cartels. In the Pre-Insulated Pipes case for example the cartel members continued their illegal activities for 9 months even after Commission's officials had uncovered clear documentary evidence of the infringements during the inspections. The cartel was only brought to an end when the Commission sent out detailed requests for information to the participants with references to their own incriminating documents. In the early years of cartel enforcement in the Community companies almost categorically refused to co-operate with the Commission even if clear evidence had been found during an inspection. The companies concerned also raised every possible procedural issue in their appeals against the Commission's decision before the Court of Justice and later also the Court of First Instance.

The Leniency Notice

In order to increase effectiveness both in detection and handling of cartel cases the Commission published in July 1996 its notice on the non-imposition or reduction of fines in cartel cases. This so-called Leniency Notice is not conceived as a reward to the undertakings co-operating with the Commission, but as a potent investigative weapon. It recognises a difficulty of obtaining hard evidence in an increasingly sophisticated environment. Under the notice the first firm that provides the Commission with decisive evidence of a cartel's existence,

puts an end to its involvement and puts forward, throughout the investigation, all the relevant information and documents available to it regarding the cartel that is at test, such a company can have its fines reduced by 50–75 %, that is the Section C of the notice, provided that it was not a cartel ringleader and even by 75–100 % if in addition the Commission had not yet initiated an investigation of the cartel, that is Section B of the notice.

Leniency is also available to those who come in later on. Undertakings that are not the first but still provide useful evidence to prove the infringement will still get a reduction which can be from 10- 50%, that is Section D of the notice. To qualify under the leniency notice any cooperation has to be real, immediate and effective. As the Community legal system relies on written evidence, real and meaningful cooperation means that the companies have to submit written statements or other incriminating documents.

After adoption in July 1996 it took several months before the Leniency Notice was actually applied in a Commission decision. This was of course due to the complexity and long duration of cartel proceedings and the fact that the nature and extent of the undertakings cooperation is evaluated at the end of the proceedings, a fundamental difference with American way of doing this. It took a certain period of time for this new instrument to be understood and accepted by the undertakings and the lawyers as a serious alternative to hoping that the infringement would not be detected at all or trying to obstruct the Commission's procedure once the infringement was detected. Since July 1996 up to now the Leniency Notice has been applied in seven cases, so it is still a limited experience. They are Extra d'Alliage, British Sugar, Preinsulated pipes, Greek Ferries – all decisions of 1998 – the Seamless steeltubes case of December 1999 and the recent FETTSCA and Lysine decisions of May and June this year. In none of these cases total immunity could be granted, because all of the conditions set out of Section B of the notice were not fulfilled. But in each case the Commission reduced the amount of the fines substantially up to 50 % in application of the other provisions of the notice. This first experience shows that after an initial wait-and-see approach the Leniency Notice now plays an important role in ongoing cases. For the time being it has been involved by companies in about 2/3 of the cartel cases under scrutiny.

Guidelines on Fines

Co-operation by an enterprise is only one of the several factors, which the Commission takes into account when fixing the amount of fines. The other factors are described in the Commission's guidelines on

finer, which were adopted at the end of 1997. The main purpose of these guidelines was to provide an objective and transparent method for setting fines. In addition the dual function of fines was borne in mind, that is both to punish the infringement and to deter companies from infringing the rules in the first place. In sum the intended message is clear: cartelization does not pay. This was made very clear by commissioner Monti in the context of the Lysine decision this year: "The Commission needs to be tough on these sort of hard-core cartels. That is why heavy fines are in order here. They must have a deterrent effect."

In essence the guidelines set out a system based on the calculation of a basic amount that can be increased to take account of aggravating circumstances or decreased to take account of extenuating circumstances. The basic amount is determined according to the gravity and duration of the infringement and as regards gravity the guidelines differentiate between minor, serious and very serious infringements. Cartels invariably fall into the category of very serious infringements for which the starting point is now at least 20 million euros. In the case of a short-term infringement, lasting less than one year, there is as a rule no increase in the basic amount calculated on the basis of gravity. For medium term infringement, between one and five years, firms could expect the amount to be increased by up to 50 %. If the infringement has lasted for longer than five years, up to 10 % per year can be added to the fine. The basic principle of the guidelines is one of equal punishment for the same misconduct. This does not mean the same amount for all; the guidelines expressly allow the Commission a certain amount of flexibility enabling it to take account of the circumstances of the individual case. There is, nevertheless (you have certainly understood this) a certain tension between on the one hand the need of certain transparency and objectivity and on the other hand the need or the interest to avoid that in advance calculable tariffs for cartels are foreseen and in that sense the deterrent effect is questionable.

The cartel unit

In order to strengthen our efforts against cartels we have created a specialised cartel unit. On December 1998 this unit became operative and was provided with proper resources to uncover, pursue and bring an end to cartels. In my view, it is not an uncontested view, the establishment of such a specialised unit was necessary in order to focus resources and to better prepare officials for the particular task of cartel investigation. Most cartel cases require complex investigation in order to uncover evidence, which may have been disguised or suppressed. The cartel unit comprises highly specialised case handlers

with a necessary profile and mentality and it co-operates closely with our sectorial units within the Competition Directorate-General. This makes it possible to benefit both from the synergies of treating all cartel cases in one unit and from the knowledge of different business sectors in other units. The creation of the cartel unit confirms in concrete terms the priority the Commission gives to fighting cartels. It also gives a clear political signal to companies who are today too often tempted to co-ordinate their market behaviour with competitors. Our practical experience within an extremely short period, that is not even two years, is that the output in this area of fighting cartels has increased in an unbelievable, unforeseen way and the work in this area is done with devotion and commitment, which we had rarely seen in the past.

I would like to conclude by emphasising again the importance of effective cartel enforcement. Time and time again the Commission has underlined the fact that cartels are extremely serious infringements, that cause great harm to our economies and punish the consumers. They must therefore be fought with vigourance and determination. The Commission's record in uncovering and detecting secret cartels is already good, but we believe that by reforming our enforcement system and by working closely, even more closely, with our colleagues in the national competition authorities we can do even better. You can certainly count on us to step further up the fight against cartels in the coming years.

13 Lessons common to detecting and deterring cartel activity

Scott D. Hammond

Introduction

It is a pleasure to be here and to share with you the United States' experiences in detecting and deterring cartel activity. In discussing these two topics – detection and deterrence – I will focus on our experience with our Corporate Leniency Program, or as it is also known, the Corporate Amnesty Program (“Amnesty Program”). The Amnesty Program has been largely responsible for uncovering the majority of the large international cartels that we have recently prosecuted. Its success has already led a number of countries – such as Canada, the United Kingdom, Germany, and France – as well as the European Union to develop their own programs with still other countries considering whether to follow. From our perspective, the Amnesty Program is unquestionably the most important investigative tool available for detecting and cracking cartel activity. The success of the Amnesty Program also provides an appropriate lesson on deterrence, the second topic on the agenda. That is because the bedrock principles that apply to effectively *preventing* cartels are also at the core of implementing a successful amnesty program for *detecting* cartel activity once it does occur.

I will focus today on three hallmarks for both a successful Amnesty Program and an enforcement program that deters cartel activity. First, one's antitrust laws must provide the threat of stiff sanctions for those who participate in hardcore cartel activity. Second, antitrust authorities must cultivate a law enforcement environment in which business executives perceive a significant risk of detection by antitrust authorities if they either enter into, or continue to engage in, cartel activity. Third, antitrust authorities must provide transparency, to the greatest extent possible, throughout the anti-cartel enforcement program so that prospective cooperating parties can predict with a high degree of certainty their treatment following cooperation. These three major cornerstones – stiff potential penalties, heightened fear of detection, and transparency in enforcement policies – are at the heart of both our Amnesty Program and our deterrence efforts.

The Corporate Amnesty Program

Before I address these three principles, I need to share with you some background information on how the Amnesty Program was developed and how it works in order to put its impact into perspective. The original version of our Amnesty Program actually dates back to 1978. Under that program, violators who came forward and reported their illegal activity before an investigation was underway were *eligible* to receive a complete pass from criminal prosecution. The grant of amnesty, however, was not automatic and the Division retained a great deal of prosecutorial discretion in the decision making process. Unfortunately, for reasons that I will discuss in more detail a little later, it became clear over time that this program was flawed. It resulted in relatively few amnesty applications and did not lead to the detection of a single international cartel.

In 1993, the Antitrust Division dramatically expanded its Amnesty Program to increase the opportunities and raise the incentives for companies to report criminal activity and cooperate with the Division. The Amnesty Program was revised in three major respects. First, the policy was changed to ensure that amnesty is *automatic* if there is no pre-existing investigation. That is, if a corporation comes forward prior to an investigation and meets the program's requirements, the grant of amnesty is certain and is not subject to the exercise of prosecutorial discretion. Second, the Division created an alternative amnesty, whereby amnesty is available even if cooperation begins *after* an investigation is underway. Third, if a corporation qualifies for automatic amnesty, then all directors, officers, and employees who come forward with the corporation and agree to cooperate also receive automatic amnesty. (See attached Corporate Leniency Policy). One aspect of the program that did not change is that amnesty applies only to criminal sanctions, and firms accepted into the Amnesty program are required, where possible, to make full restitution to their victims in the United States.

Because of the novelty and uniqueness of this policy, it took some time before the private bar and business community gained confidence in the program. However, over the last five years, the results have been staggering. There has been more than a ten-fold increase in amnesty applications during this time frame. Moreover, in the last two years alone, cooperation from amnesty applications have resulted in scores of convictions and well over \$1 billion in fines. More than anything else, the expansion of the Amnesty Program has been responsible for the success that we have had in cracking international cartels.

The threat of severe sanctions

Treating cartel activity as a crime

With that background, I want to address the first element common to both deterring cartel activity and creating a successful Amnesty Program and that is the threat of severe sanctions for violators. In the United States, hardcore cartel activity -- such as price-fixing, bid-rigging, and customer and market allocation agreements -- is a felony violation of our criminal laws, and both corporations and individuals may be held liable. Corporations risk heavy criminal fines with the maximum potential fine being the greatest of \$10 million, twice the gross gain to the cartel, or twice the gross loss suffered by the victims of the conspiracy. The maximum sentence for individuals is three years imprisonment and a fine which is the greatest of \$350,000, twice the gross gain to the cartel, or twice the gross loss suffered by the victims of the conspiracy.

Of course, the United States is in the minority, albeit a growing one, in treating hardcore cartel activity as a crime and prosecuting offending corporations and individuals as criminals. I will not take this opportunity to explore all of the arguments in favor of prosecuting cartel activity criminally except to make the following point relevant to the discussion on deterrence. Based on our experience, there is no greater deterrent to the commission of cartel activity than the risk of imprisonment for corporate officials. Corporate fines alone are simply not sufficient to deter many would-be offenders. For example, in some cartels, such as the graphite electrode cartel, individuals personally pocketed millions of dollars as a direct result of their criminal activity. A corporate fine alone, no matter how punitive, is unlikely to deter such individuals.

The perceived risks must outweigh the potential rewards

While there is no current consensus as to whether cartels should be prosecuted criminally, there should be no dispute that cartel activity will not be deterred if the potential penalties are perceived by firms and their executives as outweighed by the potential rewards. If the potential sentences are not sufficiently punitive, then the potential sanctions will merely be seen as a cost of doing business. Just as the loss of one's liberty will certainly not be viewed in this manner, a heavy corporate fine may also send a powerful deterrent message. To this end, we have recently "upped the ante" by obtaining record-breaking fines against firms who engage in cartel activity. At the time the Amnesty Program was revised in 1993, the highest antitrust fine ever obtained in the United States was less than \$3 million. Today, fines of \$10 million or more have become almost commonplace with

more than 30 imposed in the last five years. In fact, the Division has obtained fines of \$100 million or more against five corporate defendants, including a \$500 million fine against F. Hoffmann-La Roche (HLR) for its participation in the worldwide vitamin cartel. This dramatic leap in the level of criminal fines, however, is more than just a reflection of our aggressive approach for deterring cartel activity. Rather, because fines in the United States are based in large part on a company's sales in the United States affected by the conspiracy, the record fine levels demonstrate the mammoth size of the international cartels that we have been uncovering, largely through the Amnesty Program; cartels that simply dwarf the domestic conspiracies that we have previously encountered.

The prosecution of HLR in the vitamin investigation also offers some sobering insight as to the risks companies are willing to take in order to profit from cartel activity and to how inadequate fines may be to ensure specific, let alone, general deterrence. In 1997, two years before HLR's participation in the vitamin conspiracy was exposed, HLR was investigated and convicted of participating in a separate international cartel in the citric acid industry. The firm entered into a plea agreement, agreed to cooperate, and was ordered to pay a \$14 million fine -- which at the time was the third largest antitrust fine ever obtained in the United States. As part of its cooperation, HLR was told of the Division's then-covert investigation into the vitamin industry and offered the opportunity to cooperate. The Division interviewed two top executives from HLR who participated in the citric acid conspiracy and who also had dual responsibilities in HLR's vitamin business. HLR and its top executives denied to investigators any knowledge of, or participation in, a vitamin cartel. Of course, we would later learn that HLR had, in fact, engaged in a decade-long, worldwide vitamin cartel, and continued to lead that cartel even after it pled guilty in the citric acid investigation and learned that its vitamin business was under investigation. Instead of being deterred, top-level HLR executives orchestrated false statements to enforcement authorities, took steps to further conceal the firm's illegal activities, and continued to lead the world's other producers in a global cartel. This decision will end up costing HLR well over a billion dollars in criminal fines and civil settlements. In addition, three European executives from HLR, including the two executives who blew their opportunity to come clean in the citric acid investigation, served time in U.S. prisons for their participation in the vitamin conspiracy. Clearly, the \$14 million fine in the citric acid prosecution was not nearly enough to deter HLR or its top executives from continuing to participate in the vitamin cartel. Time will tell if the \$500 million fine and jail sentences for the HLR executives will.

Corporate amnesty can mean zero fines and no jail

Of course, the Amnesty Program offers companies and their executives an alternative to these potentially harsh sentences. If a company detects an antitrust violation before we do, it has to choose whether to report the violation and seek leniency or to remain silent and hope for the best. When we revised our Amnesty Program, we sweetened the carrot by increasing the opportunities and incentives for companies to self report and cooperate. At the same time, our recent record of successful prosecutions and heavy sentences has sharpened the stick for companies who risk the alternative path.

The question is often raised as to whether an Amnesty Program will work in a jurisdiction where there is no individual liability and, therefore, no possibility of incarceration for culpable executives. Clearly, the opportunity to avoid imprisonment for corporate officials is a major inducement for firms to seek amnesty. However, in my opinion, an Amnesty Program can still succeed if the threat of heavy fines is significant enough. This belief is supported by our experience with foreign-based firms who have sought and obtained amnesty in international cases at a rate almost equal to their domestic counterparts. For example, the worldwide vitamin cartel was cracked by the cooperation provided by French-based Rhône-Poulenc SA.¹ The company made the decision to come forward even though the culpable French executives resided outside of the United States and our extradition treaty with France does not cover antitrust offenses. So, the opportunity to avoid incarceration for its culpable executives was probably not the major inducement to Rhône-Poulenc's decision to come forward, but rather the desire to avoid a criminal conviction and heavy fine for the corporation. And, indeed, while Rhône-Poulenc paid zero dollars in fines, its principal co-conspirators, HLR and BASF, paid fines of \$500 million and \$225 million, respectively.

Fear of detection*Building a strong enforcement record*

Of course, if firms perceive the risk of being caught by antitrust authorities as very small, then stiff maximum penalties will not be sufficient to deter cartel activity. Likewise, if cartel members do not fear detection, they will not be inclined to report their wrongdoing to authorities in exchange for leniency. Therefore, antitrust authorities must cultivate a law enforcement environment in which business ex-

¹The Division has a policy of treating the identity of amnesty applicants as a confidential matter, much like the treatment afforded to confidential informants. However, confidentiality is not required in this case with respect to Rhône-Poulenc's amnesty status, because the company has already issued a press release announcing its acceptance into the Amnesty Program.

executives perceive a significant risk of detection by antitrust authorities if they either enter into, or continue to engage in, cartel activity.

For example, think back to the tapes of the lysine cartel meetings that you watched yesterday. At the time of these meetings, there had been virtually no international cartel prosecutions in the United States, and the revised Amnesty Program was in its infancy. The cartel members took precautions like setting up bogus trade association meetings, creating false documents, and staggering their arrival times at meetings in order to conceal their scheme. It was plain, however, that the cartel members did not fear detection by U.S. or foreign anti-trust authorities. In fact, they literally laughed at the very idea of it.

Well, times have changed. In 1993, when the lysine investigation was underway, there were only a handful of Division investigations of alleged international cartel activity. By comparison, the Division currently has roughly 30 grand juries investigating suspected international cartel activity. Similarly, at the time of the lysine investigation, less than 2 percent of our corporate defendants were foreign-based, as compared to nearly 50 percent of our corporate defendants last year. These investigations are uncovering massive cartels and leading to record fines. For example, in the 10 years prior to 1993, the Division obtained, on average, less than \$30 million in criminal fines annually. The Division's total fines imposed over the last three fiscal years increased from \$205 million in FY 1997, to \$267 million in FY 1998, to \$1.1 billion in FY 1999. Well over 95 percent of these fines were imposed in connection with investigations of international cartel activity.

The race to the courthouse

So, have the \$100 million-plus fines had a deterrent effect by either stifling the formation of cartels or disbanding them if they already exist? There is no way to quantify the number of cartels that are deterred before they are ever formed, but we are witnessing how our enforcement efforts are influencing cartels that already exist. To put it plainly, cartel members are starting to sweat, and the Amnesty Program feeds off that panic.

The more anxious a company is that its cartel participation may be discovered by the government, the more likely it is to report its wrongdoing in exchange for amnesty. The promise of zero dollars in fines and immunity for culpable executives looms large. Of course, amnesty is only available to the first one in the door. If you are second, even if only by a matter of a few hours, which has happened on a number of occasions, the second firm and all of its culpable executives will be subject to full prosecution.

The "winner-take-all" race dynamic leads to tension and mistrust among the cartel members. For example, consider a scenario where

five members of a cartel are scheduled to hold an emergency meeting. When the meeting starts there is an empty seat at the table – one of the conspirators has not returned calls and has unexpectedly not arrived at the meeting. Red flags go up. One of the cartel members at the meeting starts to get nervous. Has the missing cartel member had a change of heart and abandoned the cartel? Has he gone to the Feds? Or, did he just miss his plane? In this environment, with the risk of detection and the stakes so high, who can you trust? Or consider the very common situation when a cartel first learns that it's under investigation. Each member of that cartel knows that any of its co-conspirators can be the first to come forward in exchange for total amnesty and seal the fate of the rest. Imagine the vulnerability of being in that position and asking yourself, “Can I really trust my competitors?”

The safe harbors are shrinking

Of course, antitrust authorities in Europe and around the world share the credit for the heightened fear of detection by those who are engaging in, or are considering, cartel activity. This conference has already highlighted many of the changes in antitrust laws, the enforcement victories, and the commitment to anti-cartel enforcement that is taking hold throughout the world, so I will not try and summarize them here. Suffice to say, the world is changing, antitrust authorities are working more closely together than ever, and the safe harbors for cartel activity are shrinking.

However, if you needed any more proof of how significantly attitudes have changed toward anti-cartel enforcement or how seriously the risks are now perceived by the international business community, consider the case of the six high-level European executives from HLR and BASF who led their companies' decade-long participation in the worldwide vitamin cartel. Each of these foreign executives voluntarily traveled to the United States to plead guilty and to serve time in a U.S. prison. They were all citizens of either Switzerland or Germany, residing abroad, with no family or other ties to the United States. Therefore, the United States courts had no personal jurisdiction over any of these individuals so long as they did not set foot on U.S. soil. Moreover, the United States does not have an extradition treaty with either Switzerland or Germany covering antitrust offenses. And so, you may wonder why did these six international executives agree to leave their families behind, submit to the jurisdiction of a U.S. court, agree to plead guilty, cooperate with our investigation, and serve time in a U.S. jail? I am sure there are many diverse and intensely personal reasons why these individuals arrived at the decisions they made. However, I'm convinced that all of these executives were driven, in

large part, by the recognition that Europe and the rest of the world are changing their attitudes toward cartel activity. They did not want to live their lives as international fugitives in this changing world. The risk is too great. To me, this is the best indication that cartel members are getting the message.

Transparency in enforcement policies

Transparency in enforcement maximizes cooperation

The third and final hallmark of both an effective Amnesty Program and an anti-cartel enforcement program is the need for transparency. Self reporting and cooperation from offenders have been essential to our ability to detect and prosecute cartel activity. Cooperation from violators, in turn, has been dependent upon our readiness to provide transparency, to the greatest extent possible, throughout our anti-cartel enforcement program. If prospective cooperating parties cannot predict, with a high degree of certainty, their treatment following cooperation, then they are less likely to come forward.

Transparency must include not only explicitly stated standards and policies but also clear explanations of prosecutorial discretion in applying those standards and policies. The Division has sought to provide transparency in the following enforcement areas: (1) transparent standards for opening investigations; (2) transparent standards for deciding whether to file criminal charges; (3) transparent prosecutorial priorities; (4) transparent policies on the negotiation of plea agreements; (5) transparent policies on sentencing and calculating fines; and (6) transparent application of our Amnesty Program.² With the time I have remaining, I will address how transparency is critical to an effective Amnesty Program.

Transparency in the Amnesty Program

The Division has a written Amnesty Policy and has published a number of papers in order to clarify the Division's application of its Corporate Amnesty Program.³ In addition, representatives from the Division regularly speak about the Amnesty Program before national and

²For a more detailed discussion on transparency in enforcement with references to Antitrust Division public statements in each of the areas outlined above, see, "Transparency In Enforcement Maximizes Cooperation From Antitrust Offenders," by Gary R. Spratling, Deputy Assistant Attorney General, Antitrust Division, before Fordham Corporate Law Institute (October 15, 1999).

³ See e.g., "The Corporate Leniency Policy: Answers To Recurring Questions," speech by Gary R. Spratling, before ABA Antitrust Section 1998 Spring Meeting (April 1, 1998); "Making Companies An Offer They Shouldn't Refuse," speech by Gary R. Spratling, before Bar Association of the District of Columbia's 35th Annual Symposium on Associations and Antitrust (February 16, 1999).

international bar associations, trade groups, other law enforcement agencies, and the media. However, in order for an Amnesty Program to work, you need to do more than just publicize your policies and educate the public. You have to be willing to make the ultimate sacrifice for transparency – the abdication of prosecutorial discretion.

The Division's Amnesty Program by its nature is transparent because we have eliminated, to a great extent, the exercise of prosecutorial discretion in its application. If a corporation comes forward prior to an investigation and meets the program's requirements, the grant of amnesty is automatic and is not subject to the exercise of prosecutorial discretion. For those in the audience who are not current or former government officials, I can assure you that this is a very difficult thing to do. We have had to swallow hard on a number of amnesty applicants that we would have much preferred to prosecute. However, remember we had roughly 15 years of experience with an Amnesty Program that was designed to maintain a greater degree of prosecutorial discretion, and it simply did not work. Prospective amnesty applicants come forward in direct proportion to the predictability and certainty of whether they will be accepted into the program. Uncertainty in the qualification process will kill an amnesty program.

Conclusion

In closing, the formula for a successful anti-cartel enforcement program should include equal parts of stiff potential penalties, high detection rates, and transparent enforcement policies. This recipe will serve to prevent most companies from ever engaging in cartel activity. However, when cartels are formed, we have found that the Amnesty Program, with its lure of leniency in exchange for self reporting and full cooperation, is the most effective investigative tool for cracking cartel activity.

Appendix

***U.S. Department of Justice
Antitrust Division***

August 10, 1993

CORPORATE LENIENCY POLICY

The Division has a policy of according leniency to corporations reporting their illegal antitrust activity at an early stage, if they meet certain conditions. "Leniency" means not charging such a firm criminally for the activity being reported. (The policy also is known as the corporate amnesty or corporate immunity policy.)

Leniency Before an Investigation Has Begun

Leniency will be granted to a corporation reporting illegal activity before an investigation has begun, if the following six conditions are met:

At the time the corporation comes forward to report the illegal activity, the Division has not received information about the illegal activity being reported from any other source;

The corporation, upon its discovery of the illegal activity being reported, took prompt and effective action to terminate its part in the activity;

The corporation reports the wrongdoing with candor and completeness and provides full, continuing and complete cooperation to the Division throughout the investigation;

The confession of wrongdoing is truly a corporate act, as opposed to isolated confessions of individual executives or officials;

Where possible, the corporation makes restitution to injured parties; and

The corporation did not coerce another party to participate in the illegal activity and clearly was not the leader in, or originator of, the activity.

Alternative Requirements for Leniency

If a corporation comes forward to report illegal antitrust activity and does not meet all six of the conditions set out in Part A, above, the corporation, whether it comes forward before or after an investigation has begun, will be granted leniency if the following seven conditions are met:

The corporation is the first one to come forward and qualify for leniency with respect to the illegal activity being reported;

The Division, at the time the corporation comes in, does not yet have evidence against the company that is likely to result in a sustainable conviction;

The corporation, upon its discovery of the illegal activity being reported, took prompt and effective action to terminate its part in the activity;

The corporation reports the wrongdoing with candor and completeness and provides full, continuing and complete cooperation that advances the Division in its investigation;

The confession of wrongdoing is truly a corporate act, as opposed to isolated confessions of individual executives or officials;

Where possible, the corporation makes restitution to injured parties; and

The Division determines that granting leniency would not be unfair to others, considering the nature of the illegal activity, the confessing corporation's role in it, and when the corporation comes forward.

In applying condition 7, the primary considerations will be how early the corporation comes forward and whether the corporation coerced another party to participate in the illegal activity or clearly was the leader in, or originator of, the activity. The burden of satisfying condition 7 will be low if the corporation comes forward before the Division has begun an investigation into the illegal activity. That burden will increase the closer the Division comes to having evidence that is likely to result in a sustainable conviction.

Leniency for Corporate Directors, Officers, and Employees

If a corporation qualifies for leniency under Part A, above, all directors, officers, and employees of the corporation who admit their involvement in the illegal antitrust activity as part of the corporate confession will receive leniency, in the form of not being charged criminally for the illegal activity, if they admit their wrongdoing with candor and completeness and continue to assist the Division throughout the investigation. If a corporation does not qualify for leniency under Part A, above, the directors, officers, and employees who come forward with the corporation will be considered for immunity from criminal prosecution on the same basis as if they had approached the Division individually.

Leniency Procedure

If the staff that receives the request for leniency believes the corporation qualifies for and should be accorded leniency, it should forward a favorable recommendation to the Office of Operations, setting forth the reasons why leniency should be granted. Staff should not delay making such a recommendation until a fact memo recommending prosecu-

tion of others is prepared. The Director of Operations will review the request and forward it to the Assistant Attorney General for final decision. If the staff recommends against leniency, corporate counsel may wish to seek an appointment with the Director of Operations to make their views known. Counsel are not entitled to such a meeting as a matter of right, but the opportunity will generally be afforded.

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