Vertical relations in cartel theory: managerial incentives, buyer groups & antitrust damages

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7 Implications for Competition Policy and Conclusions

This dissertation presented five pieces of research on vertical relations in cartel theory. While the basic cartel model considers integrated profit-maximizing firms on the same horizontal level of production, I extended the basic model by investigating vertical relations both within firms (owners-management) and among firms (suppliers-buyers). I studied three topics in competition policy: (i) Chapters 2–4 investigated the impact of managerial incentives on the stability and behavior of cartels; (ii) Chapter 5 studied how joint purchasing agreements between firms on the input market (buyer groups) affect the competitive process on the output market; and (iii) Chapter 6 determined how the economic harm caused by a cartel is distributed along a longer chain of production.

In this concluding chapter, I discuss the implications for competition policy (Section 7.1) and summarize the approach and conclusions of the previous chapters (Section 7.2).

7.1 Implications for Competition Policy

The analyses in Chapters 2, 5 and 6 allowed to derive implications for competition policy,[146] which were discussed in detail in Sections 2.6, 5.6 and 6.4. Here, I summarize these policy implications, arranged by four instruments: leniency policy, antitrust compliance programs, competition policy toward buyer groups, and Europe's emerging antitrust damages practice. I also discuss the robustness of the policy implications by indicating the extent to which restrictive modeling assumptions drive the key results.

7.1.1 Corporate and Individual Leniency Programs

The optimal design of leniency policy is one of the foci of Chapter 2. The three-tier *authority-shareholder-manager* model derives optimal sanctions when either the corpora-

[146] The models in Chapters 3 and 4 expose economic forces that do not directly relate to policy.

tion or an involved individual blows the whistle, thereby assessing the effects of the U.S. and E.U. corporate leniency programs, as well as the U.S. individual leniency program.

Corporate leniency program. The E.U. corporate leniency program (CLP) allows firms to blow the whistle in exchange for full immunity from legal sanctions aimed at the corporation.[147] The CLP provides a full discount on the corporate fine for the first firm to come forward with evidence. The results of Chapter 2, however, suggest that *partial* corporate leniency may be more effective to fight corporate violations of the law as (i) firms would still receive a reduced sanction and would, thus, be incentivized to blow the whistle, while (ii) the sanction is not reduced all the way to zero and, thus, firms would still be punished to some extent.

However, as Chapter 2 abstracts away from strategic interaction *between* firms, optimal competition policy should carefully balance how the "partial corporate leniency result" operates in a strategic environment. It may well be the case that full corporate leniency adds to the fear of cartel members that a rival corporation will blow the whistle. Moreover, it may be practically difficult to determine the optimal amount of partial corporate leniency in the first place, because the authority then needs to estimate the corporation's benefit from breaching the law, which is different for each (type of) cartel.

The U.S. CLP not only protects the whistle-blowing firm from corporate legal sanctions when blowing the whistle, but also provides its employees with full immunity from individual legal sanctions.[148] The model shows that such a "blanket" covering the entire corporation, including its employees, entails a perverse effect: it removes the fear of involved employees that the corporation will blow the whistle. This, in turn, reduces the corporation's expected indemnification costs—i.e., the corporation's costs of bribing the employee to engage in cartelization—thereby increasing the attractiveness of forming a cartel. This consideration suggests a counterproductive effect of the CLP's blanket over employees. However, the analysis in Chapter 2 abstracts away from strategic considerations between firms; it may be the case that the reduction in indemnification costs *ex ante* destabilizes collusion through the fear that another cartel member will blow the whistle.

Individual leniency program. The U.S. individual leniency program (ILP) allows involved employees to blow the whistle in exchange for full immunity from legal sanctions, such as personal fines or jail sentences.[149] Such a policy is expected to *horizontally* destabilize cartels, as each firm fears that an employee of another firm will blow the whistle.[150]

[147] See *Commission Notice on Immunity from fines and reduction of fines in cartel cases*, Official J. 298/17 (2006).
[148] See the U.S. Department of Justice's *Corporate Leniency Policy* (10 August 1993).
[149] See the U.S. Department of Justice's *Leniency Policy for Individuals* (10 August 1994).
[150] See, for example, Motta and Polo (2003) and Chen and Rey (2006).

In addition, Chapter 2 shows how the ILP *vertically* destabilizes cartels by introducing a hierarchical conflict of interest: employees need to be bribed by superiors not to file for individual leniency, thereby increasing the firm's internal costs of forming a cartel.

Chapter 2 also argues that the ILP may actually increase the firm's internal costs of complying with competition law, because employees must be compensated to prevent them from forming a cartel and file for individual leniency instead of complying with the law in the first place. When this perverse effect dominates the two positive effects from the previous paragraph, then the ILP may be counterproductive in fighting cartels. While this problem can be circumvented by granting individual leniency only for certain (types of) cartels, such a non-uniform policy may be difficult to practically implement due to complications in measuring the effects, as well as to arguments of legal certainty.

Vertical race to the courthouse. The analysis in Chapter 2 reveals that the combination of the ILP with a CLP *not* covering involved employees can trigger a "vertical race to the courthouse." On the one hand, the CLP incentivizes the corporation to blow the whistle, in which case involved employees are fully sanctioned. On the other hand, the ILP incentivizes involved employees to blow the whistle, in which case the corporation is fully sanctioned. This leads to internal mistrust when engaging in a cartel, which may deter cartel formation from an *ex ante* perspective.

Such *vertical* destabilization parallels *horizontal* destabilization as discussed by, for example, Spagnolo (2004), who argues that the authority should grant leniency only to the first horizontal party coming forward with evidence. Similarly, Chapter 2's model provides an economic argument for leniency to apply only to the first vertical party blowing the whistle—i.e., either the corporation or the employee. Such a policy can trigger a "vertical race to the courthouse" between the corporation and its employees.

7.1.2 Antitrust Compliance Programs

Antitrust compliance programs are corporate schemes to educate employees about competition law infringements, to monitor their behavior, and to discipline them in the case of illegal conduct.[151] Chapter 2 focuses on the monitoring aspect of such programs and studies their impact on firm behavior, as well as on competition policy.

Perverse effect of monitoring through compliance programs. One of the features of a compliance program is to monitor employees so as to reduce information asymmetries within the firm. The analysis in Chapter 2 suggests that the information obtained by monitoring employees through compliance programs may be used not only to prevent

[151] See Section 8B2.1 of the 2010 U.S. Federal Sentencing Guidelines.

managerial violations of competition law at lower cost, but also to promote such violations at lower cost. This effect is particularly relevant when individual legal sanctions are high, because the reduction in information asymmetries caused by the compliance program then allows for a relatively large reduction in the information rent needed to induce employees to engage in cartelization. Without claiming that firms adopt compliance programs with only the objective to reduce information asymmetries so as to encourage its employees to misbehave, the result does, however, suggest a potential perverse effect of increasing the monitoring of harmful activities.

Since individual sanctions are high in the U.S. (personal fines, jail sentences), while non-existent in Europe,[152] the perverse monitoring aspect of compliance programs may be particularly pronounced in the U.S. The model, however, considers only the monitoring aspect of compliance programs and does not address the impact of the educational and disciplining aspects. To fully assess the impact of compliance programs on firm and individual behavior, all its dimensions should be carefully compared.

Compliance programs as a mitigating factor. While "the [European] Commission considers that it is not appropriate to take the existence of a compliance programme into account as an attenuating circumstance for a cartel infringement," the U.S. Federal Sentencing Guidelines allow for a mitigation of the corporate fine when the corporation had a well-designed compliance program in place at the time of the infringement, in some cases up to 95%.[153] The analysis in Chapter 2 suggest that it may not be optimal to apply such a fine reduction, because although monitoring through a compliance program can be useful to prevent corporate crime, it can also be used to promote corporate crime. The mere act of implementing a compliance program may, therefore, not be informative about the corporation's intentions.

Chapter 2's model is based on the monitoring aspect of compliance programs and leaves out practicalities of how, exactly, the compliance program is implemented. Therefore, the potentially perverse effect of reducing information asymmetries may not always be present. In particular, the perverse effect is less relevant when the shareholder delegates the implementation and execution of the compliance program to a third party, such as an in-house or external lawyer, that can credibly maintain its reputation.

[152] Some E.U. Member States—such as the United Kingdom, Ireland and Estonia—have, however, enacted laws to criminally prosecute involved employees on the national level. See Wils (2005), p. 130, for an overview of criminalization of competition law in E.U. Member States.

[153] See footnotes 35 and 27.

7.1.3 Competition Policy Toward Buyer Groups

The results of Chapter 5 contribute to the growing debate among both academics and practitioners on the competitive effects of buyer groups, and what the appropriate approach by competition authorities should be to dealing with such arrangements. While Section 5.6 contains a more detailed policy discussion, here, I restrict attention to the two key policy implications relating directly to the analysis.

Vertical restraints and anticompetitive buyer groups. The analysis shows that a buyer group among retailers may act as an implied cartel, with high slotting allowances being paid by their suppliers. Such buyer groups may be mistakenly identified as procompetitive forces, as retailers may use the high slotting allowances as "evidence" of the buyer group being a procompetitive organization acting to reduce input prices. Therefore, policy makers assessing the impact of a buyer group should be careful when interpreting evidence on input prices: high slotting fees will likely not result in enhanced downstream competition (as they are fixed payments), but may instead be paid in response to higher wholesale prices, which, in fact, reduce downstream competition.

Moreover, Chapter 5 shows how an anticompetitive buyer group can improve its stability by implementing other commonly observed vertical restraints, such as exclusive dealing clauses, minimum purchase clauses, and rebate schemes. When these vertical restraints are negotiated through buyer groups in combination with slotting allowances, they may be worthy of closer scrutiny by the competition authority.

Detection of anticompetitive buyer groups. Chapter 5 highlights an additional key issue for policy makers: an anticompetitive buyer group is likely to be harder to detect than standard forms of output market collusion, such as (tacitly) raising prices. A competition authority investigating the output market may not be able to find evidence of anticompetitive behavior if the retailers use a buyer group to jointly expropriate monopoly profits. An analysis of, for example, price-cost mark-ups would find no evidence of firms pricing above competitive levels if the retailers' costs are taken as given. It may be a significant step for the authority to expand the analysis of suspected retailer collusion to include an examination of the process of wholesale contracting between retailers and suppliers in the upstream market, but Chapter 5 highlights that this may, indeed, be necessary.

7.1.4 Antitrust Damages Based on the Overcharge

In longer chains of production, the price increase caused by a cartel causes harm throughout different production layers. Chapter 6 investigates how such harm is distributed along the production chain and how it relates to the direct-purchaser overcharge, which is the anticompetitive price increase multiplied by the number of products bought by direct purchasers. Here, I present two policy implications directly resulting from the model, while I refer to Section 6.4 for a more detailed policy discussion.

The overcharge is an imprecise measure for vertical antitrust harm. In its 2008 White Paper, the European Commission calls for "simplified rules on estimating the loss" from antitrust infringements, compensating direct and "indirect purchasers" for their "actual loss," as well as "the loss in profit as a result of any reduction in sales."[154] The Commission's stated primary objective is full compensation of victims of a breach of European competition law with actual damages, lost profits, and interest awarded to direct, as well as indirect, purchasers. The analysis in Chapter 6 shows that no simplified rules based on the overcharge exist to achieve this objective. At a minimum, it requires information about consumer demand and the structure of the market, such as the number of layers in the production chain, the type and level of competition among firms in each layer, their production technologies and costs. Thus, the European Commission should either allow for more-involved rules to estimate the harm or be satisfied with a rough estimate of the harm.

Upstream suppliers damages. Not only (indirect) buyers of the cartel suffer from the cartel's price increase, but suppliers of the cartel may also suffer. The reason is that the cartel's price increase may result in a reduction in demand throughout the entire chain. However, such effects are not recognized by U.S. courts. In *Associated Contractors* (1983), the court denied standing to a class of carpenters who sought antitrust damages for business loss resulting from the contractors' association using anticompetitive means to work around their union. It ruled that the carpenters' union was not injured by reason of a violation of the antitrust laws, because of the "tenuous and speculative character of the causal relationship" and the existence of "more direct victims" of the conspiracy, meaning consumers and competitors. While such reasoning may prevent cases form being brought forward when the causation of the harm is unclear, it does not necessarily conform with economic arguments and the true distribution of harm along the chain.

[154] See the European Commission's 2008 *White paper on damages actions for breach of the EC antitrust rules*, pp. 3 and 7.

7.2 Summary and Conclusions

Monitoring Managers Through Corporate Compliance Programs
In Chapter 2 (joint with Charles Angelucci), we employed a three-tier hierarchy model, *authority-shareholder-manager*, to study the impact of increased managerial monitoring through a compliance program on the authority's optimal sanctions and leniency policy. We found that compliance programs are beneficial in the fight against corporate crime if and only if the managerial sanction is relatively low. Moreover, we derived several insights that partly contradict the U.S. and E.U. corporate leniency programs, the U.S. individual leniency program, and the U.S. Federal Sentencing Guidelines. We revealed economic arguments suggesting that it may be optimal for the authority (i) to grant *partial* corporate leniency when the corporation blows the whistle, while *not* granting individual leniency to the involved employees; (ii) to not always grants individual leniency when an involved employee blows the whistle; and (iii) to not automatically apply a discount on the corporate sanction for the mere fact of having adopted a compliance program.

Our model focuses on the monitoring aspect of compliance programs and abstracts away from the educational and disciplining dimensions. Moreover, our findings are based on the firm's owner, rather than an in-house or external lawyer, implementing the compliance program. Future research may take account of such considerations.

Short-Term Managerial Contracts and Cartels
In Chapter 3, I showed how a series of short-term executive employment contracts can increase cartel stability compared to a long-term contract. The intuition is that executives may be disincentivized to defect from a collusive agreement by the threat of not being re-employed after the expiration of a short-term contract. Extending the model to allow for multiple interactions on the market within the same contractual period, I argued that short-term renewable contracts can be an explanation for observed patterns of cyclical collusive pricing. The model also allowed to show how a fixed salary component may serve to improve cartel stability with short-term contracts, while not affecting cartel stability with long-term contracts. Finally, I interpreted the results in light of firm financing so as to present a mechanism through which debt-financed firms can form more-stable cartels than equity-financed firms can.

The model extends the standard profit-maximizing cartel model by introducing finite managerial appointments. The main challenge for future research is to study the impact of such *short-termism* generated through employment contracts in more-general principal-agent set-ups, such as the model developed in Chapter 2.

Strategic Delegation Improves Cartel Stability

Chapter 4 extended the Cournot strategic delegation model by Fershtman and Judd (1987) and Sklivas (1987) to an infinitely repeated setting, and showed that the option to delegate control to employees increases cartel stability compared to the model of collusion between integrated firms. The reason is that firm owners can fiercely punish deviant managers by firing them, where such a punishment strategy is supported by the threat of reverting to the unprofitable one-shot Nash delegation equilibrium.

The seminal strategic delegation model has a few restrictions, such as contracts being linear in profits and sales, and full observability of contracts and actions. Future research could, thus, benefit from more-general principal-agent set-ups.

Efficient Cartelization Through Buyer Groups

In Chapter 5 (joint with Chris Doyle), we studied buyer groups. Buyer groups may facilitate procompetitive forces based on buyer power considerations, acting to reduce wholesale prices and level the playing field between smaller firms and larger firms that can exercise buyer power unilaterally, which potentially benefits final consumers. We instead developed a model of a strictly anticompetitive effect of buyer groups in markets where wholesale contracting is unobservable. A buyer group allows its members to credibly commit to wholesale contracts that induce joint monopoly profits in the downstream market. We showed that commonly observed vertical restraints and contracting terms—exclusivity provisions, minimum purchase clauses, and rebate schemes—enhance the stability of the buyer group by effectively limiting retailers' ability and incentives to defect from the arrangement.

The model assumes that suppliers of the buyer group are perfectly competitive and that all retailers join the group. Moreover, we assume that all buyer group members compete on the same output market. Future research may relax such assumptions.

The Overcharge as a Measure for Antitrust Damages

Finally, in Chapter 6 (joint with Maarten Pieter Schinkel and Jan Tuinstra), we assessed the passing on of antitrust harm in longer vertical supply chains in which an antitrust violation may occur in any layer of production. We found that there exist no simple multiplication factors to correct the established direct-purchaser overcharge so as to determine the true antitrust harm throughout the entire production chain. While the direct-purchaser overcharge is equal to the sum of all passed-on overcharges downstream, it misses the output effects in every layer. We also noted that the share of total harm sustained by suppliers to the cartel may be substantial.

Our model, like all models in the antitrust damages literature, assumes price-taking behavior in a particular structural set-up; this may not be suitable for all markets.