



# Fight cartels or control mergers? On the optimal allocation of enforcement efforts within competition policy

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## ABSTRACT

This paper deals with the optimal enforcement of competition law between merger and anti-cartel policies. We examine the interaction between these two branches of antitrust, given the budget constraint of the public agency, and taking into account the ensuing incentives for firms in terms of choice between cartels and mergers. To the extent that a tougher anti-cartel action triggers more mergers and vice versa, we show that the two antitrust branches are complementary. However, if the merger's coordinated effect is taken into account, then for a sufficiently large such effect the agency may optimally have to refrain from controlling mergers and instead spend all resources on fighting cartels.

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## 1. Introduction

Competition authorities address the challenge of anticompetitive horizontal agreements by both controlling mergers and fighting cartels. Under the realistic assumption of a limited budget for the public agency, one may ask how much should be spent on fighting cartels as compared with controlling mergers. Taking into account the incentives thus provided to firms, in this paper we develop a very simple framework to determine the optimal competition policy mix between merger control and cartel fighting.

Firms have been known to adapt their behavior to past decisions of the competition agency. The most famous example is probably that of the Sherman Act, which, in the words of [Mueller \(1996\)](#), “ironically, by prohibiting cartels, encouraged firms to combine [...] and thus helped precipitate the first great merger wave at the turn of the century”.<sup>1</sup> Its impact on the first merger wave was empirically confirmed by [Bittlingmayer \(1985\)](#). More recently, and based on the analysis of duration for a sample of international

cartels prosecuted in the 1990s, [Evenett, Levenstein, and Suslow \(2001\)](#) found that joint ventures and mergers are adopted by firms in cartel-prone industries where cartel formation is restricted. The following real-life example supports this statement: in 2005 the three main players on the French local urban transport markets were fined for partaking in an anti-competitive agreement to share the public transport market of urban bus services during calls for tender.<sup>2</sup> As a result, two of them, Transdev and Veolia, changed plans and five years later notified a horizontal merger, which was granted conditional approval by the French Competition Authority at the end of 2010.<sup>3</sup>

In our model we first discuss the case of this apparent substitutability between mergers and cartels. Then we also consider their complementarity, i.e. the case where firms merge before engaging in collusion. This possibility is explicitly taken into account by the competition agencies, which are bound to assess a merger's coordinated effect during its overall competitive appraisal.<sup>4</sup> Nonetheless, merger control being prone to errors, firms may sometimes still

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<sup>1</sup> This American example was later ‘confirmed’ in the UK by the Restrictive Trade Practices Act of 1956, which similarly triggered a merger wave by outlawing cartels – see [Sørgard \(2009\)](#).

<sup>2</sup> See decision 05-D-38 of July 5, 2005, available on the site of the Autorité de la Concurrence.

<sup>3</sup> See decision 10-DDC-198 of December 30, 2010, also available on the site of the Autorité de la Concurrence.

<sup>4</sup> See for instance the European Commission's Horizontal Merger Guidelines – OJ C 31/5, from 5.2.2004, paragraphs 39 to 57.

take the opportunity to collude after having merged. For instance, on November 9, 2010, the European Commission fined 11 air cargo carriers € 799 million for a price fixing cartel that spanned over six years on the European cargo services market, from December 1999 to February 14, 2006.<sup>5</sup> Interestingly enough, most of the European airlines involved (such as British Airways, AirFrance-KLM, SAS and Lufthansa-Swiss Air) had previously engaged in several successive mergers on the European airfreight market,<sup>6</sup> all of which had gained approval from the European Commission.<sup>7</sup>

We start by discussing the firms' choice to coordinate, and consider first that they can either form a cartel or undertake a horizontal merger. The relative profitability of the two options will depend on the probability of a cartel being convicted, as well as on the net private gains from mergers. Cartel fighting is imperfect in our model, as not all cartels are punished, and the probability of convicting a cartel will depend on the amount of resources allocated for this purpose. This amount will therefore capture the severity of this action. The enforcement of merger control is also imperfect, since the ex ante assessment of horizontal mergers inevitably gives rise to both types of errors, i.e. clearing welfare-reducing anti-competitive mergers and banning cost-efficient pro-competitive ones. This is mainly due to the asymmetric information between the competition agency and the merging partners on the true level of the merger's potential cost savings. Accordingly, in our model the competition agency (CA henceforth) may be able to identify and prohibit anti-competitive mergers provided it pays the cost of doing so. The more resources invested in the merger control the higher the probability of identifying anti-competitive mergers. The latter will thus capture the severity of merger control in our model. At any rate, given the limited budget of the CA, devoting more resources to fighting cartels will prevent it from applying a stricter merger control, and vice versa.

Explicitly, the trade-off we put forward in this framework is the following. The money spent on controlling mergers enables the CA to screen them and thus avoid some welfare losses from the inefficient, anti-competitive mergers. We call this a selection effect. But this effect comes at the cost of less intense cartel fighting. This is a welfare-reducing effect, which we call the detection effect. We derive our results from the net outcome of these two effects in terms of relative returns for the two instruments of the competition policy, merger control and cartel fighting. First of all we show that the two instruments, the control of mergers and the fight against cartels, are complementary, and thus the CA will always optimally spend money on both branches of competition policy. This result may no longer hold when one takes into account the merger's coordinated effect, i.e. its impact on post-merger market collusion. This materializes as a higher likelihood for a cartel to be formed and sustained after a horizontal merger, and therefore makes the firms' strategies of merger and cartel complements. To account for this, we allow the firms to choose between forming a cartel from the beginning, or merging first and later on forming a more stable cartel. In this case, and for a significant enough coordinated effect of the merger, the best way for the CA to tackle post-merger collusion is to fight cartels rather than ban mergers.

This is to our knowledge the first research paper to examine the optimal competition law enforcement mix between merger control and cartel fighting. In a related but different context, Aubert and Pouyet (2004) dealt with the relationship between cartel-fighting and sectorial regulation.<sup>8</sup> As far as antitrust and merger control are concerned, the only theoretical contribution, albeit from a positive perspective, is that of Mehra (2008), which deals with firms' choice between merger and cartel depending on the severity of the anti-cartel action (the fine in case the cartel is detected).

The rest of the paper is structured as follows. We first present the benchmark case of our analysis, then extend it to take into account the merger's coordinated effect. Each time we first discuss the optimal strategies of the firms and the CA, then establish the optimal policy mix between merger control and cartel fighting. All formal proofs are grouped at the end of the paper in a technical appendix.

## 2. Model

Consider the following setting in which the CA has a budget of size  $r$  and chooses the amount of resources to be spent on fighting cartels and controlling mergers. The market consists of three identical firms: two of them may engage in a horizontal merger,<sup>9</sup> or the whole industry may instead form a cartel.<sup>10</sup> The group of two firms is considered as a single player and we assume risk-neutrality throughout. The cartel is not detected with probability  $p_c(c)$ , where  $c$  stands for the amount of resources spent by the CA on fighting cartels, with  $p_c(\Delta) < 0$ ,  $p_c'(\Delta) = 0$ ,  $p_c(0) = 1$  and  $p_c(r) = 0$ . In other terms we assume that if the CA concentrates all its resources on cartel fighting, it detects cartels with certainty, whereas if no resources are dedicated to fighting cartels, there is no cartel detection at all. The cartel provides a joint collusive payoff of  $\pi^C$  for the two firms which may alternatively engage in a horizontal merger. We do not explicitly formalize the cartel formation but the cartel stability is captured by the size of the profit  $\pi^C$  earned if the cartel is not detected. The higher this profit, the higher the cartel stability. If the cartel is detected, which occurs with probability  $1 - p_c(c)$ , the ensuing payoff for the same two firms will be the competition joint profit  $\pi$ , where  $\pi < \pi^C$ . Note that we do not explicitly use cartel fines, but their role is captured by the lower profit made by the firms in case of successful detection.

The horizontal merger on the other hand is not only a legal means of achieving coordination, but also a source of cost savings or efficiency gains, denoted by  $e$ . The joint profit earned for the two firms engaging in the merger is then equal to  $\pi^M(e)$ . For the sake of simplicity, we assume that there are only two types of cost savings, either high ( $e = \bar{e}$ ), giving rise to an 'efficient merger', or low ( $e = \underline{e} < \bar{e}$ ), giving rise to an 'inefficient merger'. Both types occur with equal probability, and the higher the efficiency gains, the more profitable the merger:  $\pi^M(\bar{e}) > \pi^M(\underline{e})$ . We assume that the efficiency gains parameter  $e$  is *a priori* not observed by the CA, but the latter may however invest  $m = r - c$  in merger control in order to investigate the merger project and thus observe the true level of efficiency gains with probability  $p_m(m)$ . By symmetry with

<sup>5</sup> See the European Commission's press release IP/10/1487.

<sup>6</sup> See the cases M.157/1992, M.259/1992, M.278/1993, M.562/1995, M.616/1995, M.967/1997, M.1128/1998, M.1328/1999, M.1696/1999, M.2672/2002 and the joint-venture M/2830/2002.

<sup>7</sup> Ironically, when clearing the GF-X joint venture for an air freight trading platform between several European airlines (Lufthansa, Air France, British Airways and Global Freight Exchange Limited – see case M.2830/2002), the European Commission declared that the joint venture was set up in such a way that it would not lead to any co-ordination of the competitive conduct of the parent companies on the market for air freight transport – see the European Commission's press release IP/02/1560 from October 28, 2002.

<sup>8</sup> See also Bensaid, Encaoua, and Perrot (1995), who investigate the optimality of having a unique antitrust authority to deal with both cartel and mergers, or whether it is on the contrary best to separate the two on account of strategic information and incentive issues.

<sup>9</sup> More precisely, we consider a framework where the opportunity to merge is exogenous and the two firms that contemplate this move are the only ones that may do so, for instance due to some technological complementarity. Thus we leave aside the outsider's incentives to either merge with them or preempt the merger, since we do not propose to deal with this aspect of endogenous merger analysis.

<sup>10</sup> We assume for the time being that the merged entity and the remaining firm cannot form a cartel afterwards. Such a post merger cartel will be studied in the last section.

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