

# EU Merger Control Five Years After The Introduction Of The SIEC Test: What Explains the Drop in Enforcement Activity?\*

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 EC law; Enforcement; Merger control;  
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competition

“Some industrialists, and most lawyers, note that the Commission appears very keen to clear deals if at all possible. The lawyers in particular are aware that this may give them significant bargaining power with the Commission even in doubtful cases.”<sup>1</sup>

## 1. A simple statistical analysis of merger enforcement 1994–2008

### 1.1. The more-effects-based approach

Just over five years ago, on May 1, 2004, the new Regulation 139/2004 on the control of concentrations between undertakings (“EC Merger Regulation”) [2004]

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1 D. Neven, R. Nuttal, and P. Seabright, *Merger in Daylight: The Economics and Politics of Merger Control* (London: CEPR, 1993), p.7.

OJ L24/1 came into force.<sup>2</sup> It established significant impediment to effective competition (SIEC) as the new test for EU merger control. Together with the Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings (“Horizontal Merger Guidelines”) [2004] OJ C31/5,<sup>3</sup> the 2004 EC Merger Regulation forms the basis for the European Commission’s so-called “more-economic approach”, which is intended to ground EU merger analysis more firmly in modern industrial organisation theory, based on a consumer welfare standard. Besides the close alignment with economic theory, the SIEC test was also intended to close any existing enforcement gaps of the old dominance test.<sup>4</sup>

This “more-effects-based approach” had two main objectives. First, it aimed at providing merging firms with enhanced guidance so as to better anticipate and gauge the competitive issues raised by a contemplated transaction. Secondly, it was intended to enable the Commission to assess individual transactions based on their likely impact on consumer welfare, without an overly strong reliance on structural parameters.

Five years on, an impressive case law of 1,665 notified cases under the new EC Merger Regulation has accumulated. The heavy caseload reflects the accelerating merger and acquisition (M&A) activity of the past 15 years. For comparison, 2,157 cases were notified in the 10 years preceding the 2004 EC Merger Regulation. In the following sections, we provide some basic descriptive statistics on the Commission’s merger enforcement since 2004 and compare it to the preceding 10-year period using statistical tests.<sup>5</sup> Following the statistics, we relate the *ex post* result to the (*ex ante*) guidance provided by the Horizontal Merger Guidelines.

### 1.2. Proportion of prohibition decisions falls from 1.0% to 0.1%

The most striking initial observation when looking at the Commission’s track record in 2004–2008 is that its horizontal merger enforcement seems to have ground to a near halt when measured by the number and proportion of prohibition decisions. However, as we argue below, prohibition decisions form only part of the Commission’s merger control activity, and the apparent drop in prohibition decisions during 2004–2008 does therefore not automatically imply ineffective enforcement.

The number of mergers notified to the Commission has tracked closely the development of global M&A

2 Regulation 139/2004 on the control of concentrations between undertakings (“the EC Merger Regulation”) [2004] OJ L24/1.

3 Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings [2004] OJ C31/5.

4 See the EC Merger Regulation, recital 25.

5 The underlying data are available at <http://ec.europa.eu/competition/mergers/statistics.pdf> [Accessed August 25, 2009].

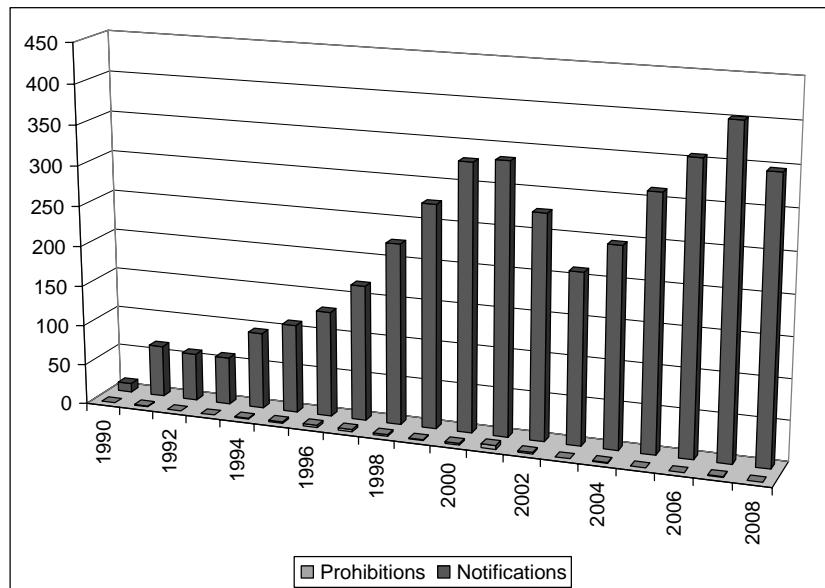


Figure 1: Number of merger notifications and prohibition decisions 1990–2008

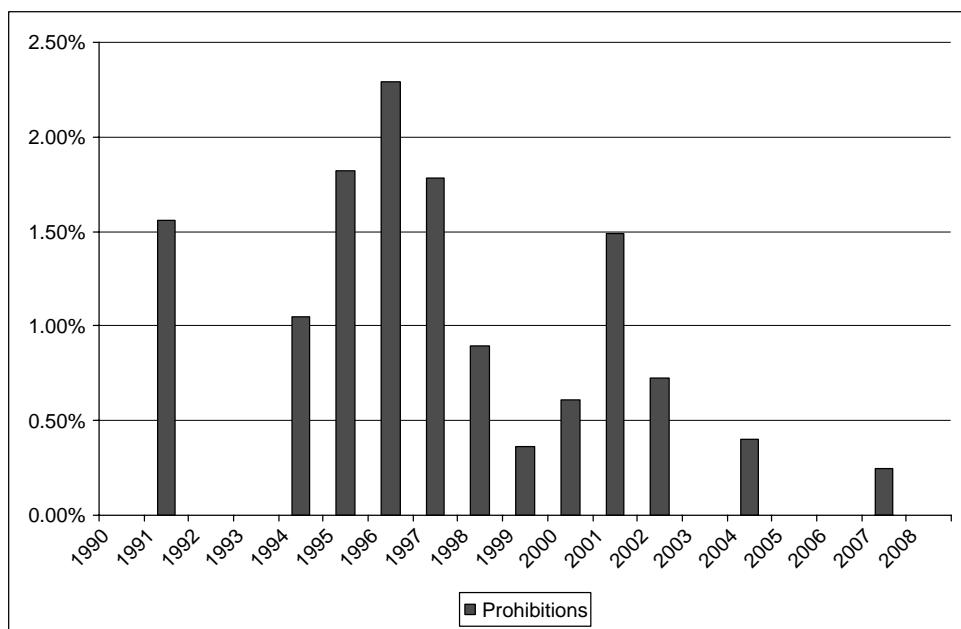


Figure 2: Prohibition decisions 1990–2008

markets. The increasing trend in the number of notifications has been punctuated only by the bursting of the dot.com bubble in 2003 and, more recently, by the financial crisis. Throughout the whole period, only a small fraction (0.6 per cent) of notified transactions were ultimately prohibited by the Commission.

Using the 10 years preceding the 2004 EC Merger Regulation as a reference period, a comparison between merger enforcement before and after the new EC Merger Regulation (from the beginning of 2004 to the end of 2008) is possible. Both periods include a broadly comparable number of notifications and cover together the entire period during which the Commission had jurisdiction for merger control with the exception of the

early years, when the annual number of notifications was still low. The percentage of prohibition decisions has fluctuated substantially from year to year, as Figure 2 indicates. In 1994–2003, on average 1.0 per cent of notified transactions were prohibited. The same proportion fell to 0.1 per cent in 2004–2008.<sup>6</sup> Both prohibition decisions during the latter period concerned mergers to (near-) monopoly (Decision in COMP/M.4439-*Ryanair/Aer Lingus*<sup>7</sup> and Decision in

<sup>6</sup> So far (as of July 31) there have been no prohibition decisions in 2009.

<sup>7</sup> Decision of June 27, 2007 declaring a concentration to be incompatible with the Common Market according to Regulation 139/2004 (COMP/M.4439-*Ryanair/Aer Lingus*).

COMP/M.3440-*EDP/ENI/GDP*<sup>8</sup>). By contrast, many prohibition cases in the preceding years can be described as “borderline cases”; that is, marginal cases in terms of market structure that sometimes involved novel theories of harm and new approaches to market definition. For example, the Decision in IV/M.1524-*Airtours/First Choice*<sup>9</sup> was the first case in which the Commission attempted to prove co-ordinated effects in a four-to-three merger setting. Although the Commission’s prohibition decision was eventually annulled by the Court of First Instance (CFI), the Court did confirm the general validity of the theory of harm developed in *Airtours Plc v Commission of the European Communities*.<sup>10</sup>

Arguably, an important part of the rationale of the SIEC test and the Horizontal Merger Guidelines was to provide more accurate guidance and enhanced predictability for merging firms and their advisors, also enabling them to better anticipate competition problems in close-to-call cases. A reduced number of prohibition outcomes could thus be an indication that improved predictability has enabled firms to better select those transactions that are likely to pass regulatory muster and has thus prevented them from notifying anti-competitive transactions in the first place. However, if that were the case, one would *a priori* expect the prohibition decisions that do still occur to fall in the borderline range, rather than in the merger to monopoly category. Based on the Commission’s guidance, one would expect that firms refrain from notifying blatantly anti-competitive transactions, whereas controversial cases and prohibition decisions would occur mainly in borderline, too-close-to-call cases, where the outcome of the merger procedure is relatively less predictable. Against this background, a potentially worrying sign is that clearance decisions have been adopted in heavily concentrated markets in which the Commission subsequently launched *ex post* interventions under art.82 of the EC Treaty (abuse of dominance), sector enquiries (e.g. in the energy and financial services sectors) or ad hoc sectoral interventions (as in the mobile telephony market).

### 1.3. The drop in prohibition decisions is unlikely to be a random outcome

Given the relatively small absolute number of prohibition decisions in both periods, one might presume that their near absence is the result of random variations. However, testing the independence of the two

<sup>8</sup> Decision of December 9, 2004 declaring a concentration to be incompatible with the Common Market (COMP/M.3440-*EDP/ENI/GDP*).

<sup>9</sup> Decision of September 22, 1999 declaring a concentration to be incompatible with the Common Market and the EEA Agreement (IV/M.1524-*Airtours/First Choice*).

<sup>10</sup> *Airtours Plc v Commission of the European Communities* (T-342/99) [2002] E.C.R. II-2585.

	1994–2003	2004–2008
Total cases	2,157	1,665
Prohibitions	21	2
Mean Pct	1.0%	0.1%
SD	0.007259	0.001873
F-test (prob)	0.024032	

Figure 3: F-test statistic on prohibition decisions

observation periods results in a highly significant result, that is, the hypothesis  $H_0$  that the data of both periods emanate from the same population—i.e. have the same (unknown) distribution—can be rejected, as the probability of this is 0.046 per cent ( $p \leq 0.00046$ ; two-sided;  $N = 3822$ )<sup>11</sup> based on a non-parametric Fisher Exact test.<sup>12</sup> Also applying a simple F-test indicates that this is unlikely (2.4 per cent probability). It thus appears that structural factors, rather than random fluctuations, are at the origin of the changed enforcement outcome between the two periods 1994–2003 and 2004–2008.

### 1.4. The same conclusion holds when merger interventions are defined more broadly

Apart from outright prohibition decisions, the Commission can also accept undertakings offered by the merging parties (mostly divestitures of business units, but increasingly also behavioural remedies) in order to eliminate the competition problems raised by a notified merger. Although these remedies are not always effective,<sup>13</sup> they can be an efficient instrument to preserve

<sup>11</sup> The Fisher Exact statistic is calculated based on the following contingency table:  $\begin{bmatrix} 2136 & 1663 \\ 21 & 2 \end{bmatrix}$ .  $H_0$ , i.e. that the data until 2003 contain an equal amount or less prohibition decisions is rejected with ( $p \leq 0.99996$ ; one-sided;  $N = 3822$ ); and hypothesis  $H_0$  that the data after 2003 contain more prohibition decisions is rejected with ( $p \leq 0.00031$ ; one-sided;  $N = 3822$ ).

<sup>12</sup> The Fisher Exact test is a non-parametric test, i.e. it does not require assumptions regarding the distribution of the population, thereby trading power for robustness. In contrast, the more powerful F-test requires that the population is normally distributed, rendering it vulnerable to violations of this assumption. Although arguably less appropriate in cases where the distribution of the population is not known, we still calculate the F-test by transforming the data into annual frequencies as it is more popular in competition analysis. Given that the F-test is the most powerful test available when its assumptions are met, the fact that the p-values are above those calculated with the Fisher Exact test indicates that normality is probably violated and/or that the data transformation results in an insufficient number of “independent” observations (i.e. a comparison of only 5 observations with 10). Based on a comparison of the tests, the data are probably light-tailed (or at least skewed) as the F-test incorrectly reports a higher p-value than the actual significance in such cases. For details on the Fisher Exact test see S. Siegel and N.J. Castellan, *Nonparametric Statistics for the Behavioral Sciences* (McGraw-Hill, 1988).

<sup>13</sup> See the analysis of the success of merger remedies taken in the Directorate General for Competition, “Merger Remedies Study” (October 2005), that covered the time period between 1996 and

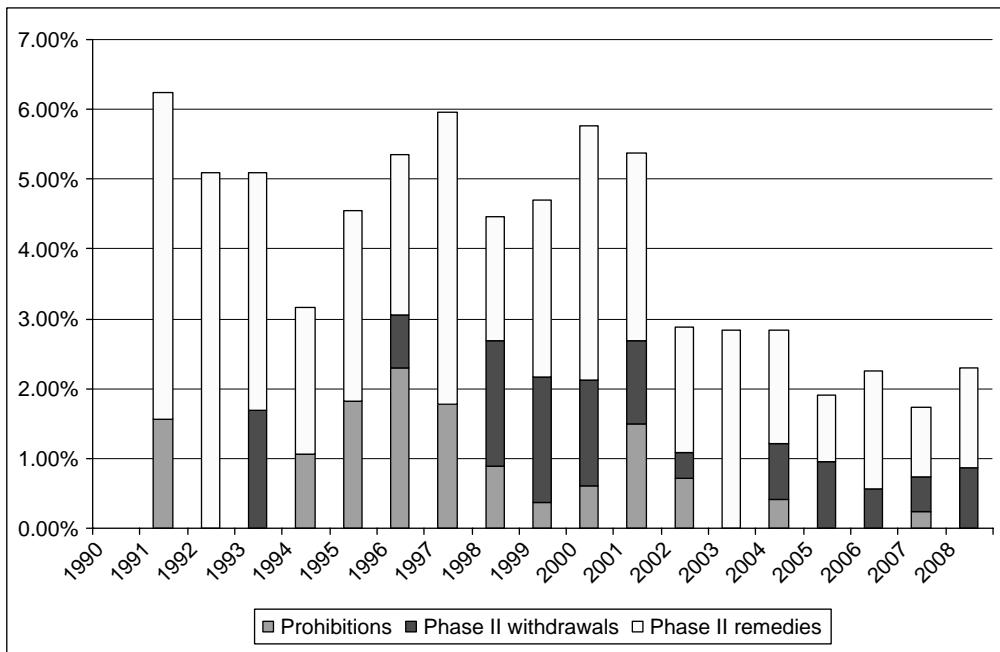


Figure 4: Phase II intervention decisions 1990–2008

effective competition while enabling firms to proceed with their transaction. Finally, firms sometimes withdraw their merger notification during the Commission's procedure. Where a withdrawal occurs after the Commission has declared its competition concerns, it is likely that the possibility of a prohibition decision has played a role in firms' decisions to withdraw.<sup>14</sup> Figure 4 thus shows the evolution of the Commission's enforcement activity measured by interventions including prohibition decisions, clearances with remedies in Phase II and Phase II withdrawals.<sup>15</sup> By this broad measure of merger

enforcement, the intervention rate has fallen by more than half between the two periods, from 4.6 per cent of all notified cases to 2.2 per cent. Testing the independence of the two observation periods including Phase II remedies and withdrawals in addition to the prohibition decisions, results again in a highly significant result, that is, the hypothesis  $H_0$  that the data of both periods emanate from the same population can be rejected as the probability of this is 0.004 per cent ( $p \leq 0.00004$ ; two-sided;  $N = 3822$ ) based on a Fisher Exact test.<sup>16</sup>

2000, which can be found at <http://ec.europa.eu/competition/mergers/studies-reports/remedies-study.pdf> [Accessed August 25, 2009]. Only 57% of all remedies analysed there (p.172) were considered effective, i.e. "fulfilled their competition objective (i.e. maintaining effective competition by preventing the creation or strengthening of a dominant market position)" (p.171).

14 In the recent MLex article "European merger control regime tougher than first meets the eye" (August 20, 2009) the author Dafydd Nelson writes that since:

"its inception in May 2004 the application of the new European Community Merger Regulation has only resulted in two blocked deals, something that regulators are all too quick to point to when seeking to rebut criticism that the law is unduly restrictive. The reality, however, is far different with many deals since then abandoned during the course of the merger control review . . . Regulatory concerns or the administrative burden placed on companies during the Phase II procedure are behind many of these withdrawals."

Although the article does not specify the time period for which it claims the validity of such a finding, we investigated MLex's hypothesis with respect to an extended period up to July 2009, for both, a period cut off point of 2003 and of 2004. In both tests, no significant difference between Phase II withdrawals in the respective periods could be detected, implying that the amount of such withdrawals is about the same in both periods and that the claims made in the article cannot be validated empirically.

15 Merger parties can submit remedies as part of a Phase II investigation in response to formal competition concerns raised by the Commission (Statement of Objections) in order

to prevent a prohibition decision. However, they can also anticipate competition problems and submit remedies earlier in the procedure (Phase I) to obtain a conditional clearance without going through the lengthy five-month Phase II procedure. Obviously, the incentive to commit to substantial divestitures in Phase I depends on the likelihood of being forced to make divestitures (or face a prohibition decision) in a Phase II investigation. Hence, we argue that Phase II interventions are the primary indicator of enforcement activity because they come after the Commission has pronounced itself on the transaction and because they create the incentives to offer substantial Phase I remedies. As "substantial" we define remedies that address a competition problem that would trigger a prohibition decision. Because the Commission only establishes preliminary competition concerns (serious doubts) after a Phase I investigation, firms may also use Phase I remedies for tactical purposes, for example, to shed assets no longer needed post merger. Firms may also decide that minor divestitures in Phase I are less costly than a lengthy Phase II procedure. Because of the ambiguous nature of Phase I remedies, we consider them as a weaker indicator of the Commission's enforcement policy than Phase II interventions.

16 The Fisher Exact statistic is calculated based on the following contingency table  $\begin{bmatrix} 2058 & 1629 \\ 99 & 36 \end{bmatrix}$ .  $H_0$ , i.e. that the data until 2003 contain an equal amount or less prohibition decisions, remedies and withdrawals in Phase II is rejected with ( $p \leq 0.99999$ ; one-sided;  $N = 3822$ ) and hypothesis  $H_0$  that the data after 2003 contain more prohibition decisions, remedies and

	1994–2003	2004–2008
Total cases	2,157	1,665
Phase-II	99	36
Mean Pct	4.6%	2.2%
SD	0.011717	0.0042
F-test (prob)	0.063557	

Figure 5: F-test statistic on Phase II interventions

As before, the F-test also indicates that the drop is unlikely to be the result of random variations (6.4 per cent probability).<sup>17</sup>

The statistical tests presented here suggest that the outcome of the Commission's merger enforcement has changed significantly between the two observation periods. It does not, however, provide any indications about the possible causes for the change. The intersection between the two observation periods coincides with the introduction of the new EC Merger Regulation and the SIEC test, but it also lies close in time to the series of three annulment decisions by the CFI<sup>18</sup> of prohibition decisions taken by the Commission. Finally, 2004 also saw a change in the European Commission.<sup>19</sup>

withdrawals in Phase II is rejected with ( $p \leq 0.00003$ ; one-sided;  $N = 3822$ ).

17 Although, as explained above, we do not consider this the most appropriate way of measuring enforcement activity, extending the notion of merger interventions to include Phase I remedies in addition to prohibitions, Phase II withdrawals and Phase II remedies, we continue to find that enforcement activity has declined significantly between the two observation periods. The Fisher Exact statistic is calculated based on the following contingency table  $\begin{bmatrix} 1965 & 1552 \\ 192 & 113 \end{bmatrix}$ . The hypothesis  $H_0$  that the data of both periods, now including Phase I remedies, emanate from the same population can be rejected as the probability of this is 1.878% ( $p \leq 0.01878$ ; two-sided;  $N = 3822$ ) based on a Fisher Exact test.  $H_0$ , i.e. that the data until 2003 contain an equal amount or less prohibition decisions, remedies and withdrawals in Phase II as well as Phase I remedies is rejected with ( $p \leq 0.99317$ ; one-sided;  $N = 3822$ ) and hypothesis  $H_0$  that the data after 2003 contain more prohibition decisions, remedies and withdrawals in Phase II as well as Phase I remedies is rejected with ( $p \leq 0.00954$ ; one-sided;  $N = 3822$ ). A comparison of both periods based only on Phase I clearance decisions with remedies does not reveal a statistical difference between periods, i.e. there is no significant difference in the amount of Phase I remedies in both periods.

18 See *Airtours Plc v Commission of the European Communities* (T-342/99) [2002] E.C.R. II-2585; *Schneider Electric SA v Commission of the European Communities* (T-310/01) [2002] E.C.R. II-4071; and *Tetra Laval BV v Commission of the European Communities* (T-5/02) [2002] E.C.R. II-4381.

19 2004 also saw some structural changes within the Commission: the post of Chief Economist was created in response to the annulments and the MTF, the Merger Task Force, was abolished. Of course there could be other, as yet unknown, structural factors—as, for instance, some cyclical development concerning notifications that drive the results; and it would obviously be possible to ascribe the findings to such factors. In the absence of plausible hypotheses which could subsequently be tested concerning such factors, however, it seems appropriate to causally relate the findings to all or a subset of the factors named in this article.

In the following sections, we assess to what extent the SIEC test and the Horizontal Merger Guidelines can provide an explanation for the change in enforcement outcomes.

## 2. The guidance provided by the Horizontal Merger Guidelines

### 2.1. Unilateral (non-co-ordinated) effects

The Horizontal Merger Guidelines set out in detail how the Commission intends to apply the SIEC test in practice. In doing so, it makes more or less explicit reference to a series of well-known models and concepts from modern industrial organisation theory. The Guidelines make a broad distinction between non-co-ordinated (unilateral) and co-ordinated effects, reflecting the methodological differences between the underlying economic theories. Obviously, the choice of the economic paradigm applied in the Guidelines is bound to have an effect on enforcement outcomes when applied over a large number of merger notifications. In the area of unilateral effects analysis, one would expect in particular the following three policy choices adopted in the Guidelines to have a bearing on the observed outcomes of merger investigations:

1. The Guidelines adopt consumer welfare as the standard under which mergers are assessed.<sup>20</sup>
2. The Guidelines define concentration thresholds<sup>21</sup> as an initial indicator of the absence of competition concerns and market share levels as potential indicators of a (lack of) dominant position.
3. The Guidelines identify the internalisation of pricing externalities as the most direct merger effect. By making reference to price-setting (Bertrand) and quantity-setting (Cournot) competition as key models of competitive interaction, they confirm that market concentration is a relevant (but not exclusive) parameter in the Commission's merger assessment.<sup>22</sup>

Hence, the analytical approach set out in the Horizontal Merger Guidelines creates no automatic link, *ex ante*, between concentration levels and the finding of a SIEC. However, consumer harm becomes more likely, *ceteris paribus*, the more concentrated markets become as a result of a merger. For example, with differentiated products, the extent to which a merged firm can raise prices depends on the degree of substitutability

20 See, in particular, paras 8 and 79 of the Horizontal Merger Guidelines.

21 As measured by the Herfindahl-Hirschman Index (HHI).

22 See recital 25 and 26 of the Merger Regulation and also para.4 of the Horizontal Merger Guidelines.

between the merging firms' products—the higher the proportion of customers for which the merging firms' products constitute the first and second choices, the higher will be the price increase that a merged firm can profitably impose when it owns both products. The degree of substitutability, in turn, depends on each product's characteristics.<sup>23</sup> Except in cases where there are no or few competitors other than the merging firms, establishing the degree of substitutability is thus a key objective of an effects-based merger analysis. It is impossible, *ex ante*, to determine the outcome of this investigation based on structural parameters of individual cases, such as market shares and Herfindahl-Hirschman Index (HHI) threshold, alone.

By contrast, *ex post* and over a large number of cases, one would expect enforcement outcomes to be correlated with concentration levels when applying the oligopoly models underlying the Guidelines. That is, notified mergers leading to high (low) market concentration are more (less) likely to raise objections. This holds unless firms self-select the types of mergers

*ex ante* stand little chance of gaining regulatory approval. The Guidelines are intended to enable firms to gauge anti-competitive effects and anticipate what type of transaction is likely to encounter regulatory problems. It would thus be unsurprising, and indeed desirable, if the number of prohibition decisions declined.

Against this background, the two merger notifications that triggered prohibition decisions between 2004 and 2008 appear to be outliers, as both concerned mergers to near monopoly that would have been extremely difficult to justify under the Horizontal Merger Guidelines. At the same time, there was not a single prohibition decision with concentration levels just above the safe harbours of the Guidelines among the 1,665 notified cases, even though these borderline cases are the ones that are most difficult to anticipate by merging firms. The low number of prohibition outcomes (as with the low number of Phase II remedies and withdrawals) can therefore not readily be ascribed to improved guidance to merging parties.

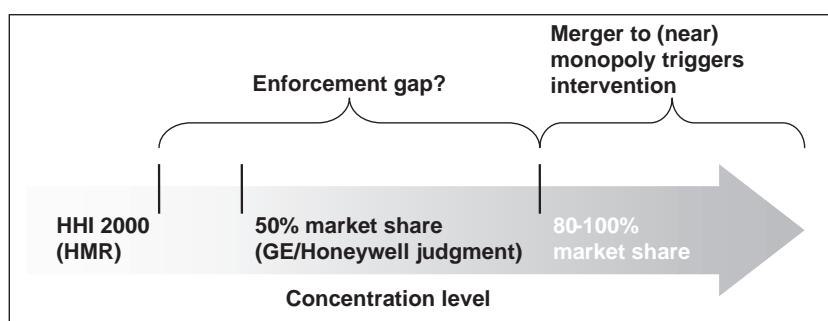


Figure 6: *Ex post* pattern of EU merger enforcement 2004–2008 based on post-merger market concentration

they notify to the Commission. It is highly likely that firms do engage in such self-selection (rather than randomly selecting their merger partners). A rational firm would aim to implement the most profitable transactions among those mergers it considers feasible, subject also to regulatory constraints. From a firm's perspective, potential merger benefits include:

- reductions in marginal costs;
- fixed cost (overhead) reductions;
- increased revenues (e.g. from access to new markets or ability to develop new products); and
- increased market power.

Only where increased market power leads to a SIEC, will the Commission intervene. One would thus expect firms to avoid notifying transactions that substantially enhance their market power, and already

It goes beyond the scope of this article to second-guess the Commission's decision in individual cases, precisely because each case is the outcome of a complex economic analysis that goes far beyond concentration levels. In hindsight and viewed over the large number of more than 1,600 notified cases, however, the observed enforcement profile remains difficult to reconcile with the set of economic models set out in the Horizontal Merger Guidelines. Not only would the economic models and the concentration thresholds applied for assessing mergers under the Guidelines require strong case-specific evidence to justify clearance decisions in highly concentrated markets, but the applied consumer welfare standard also limits the scope for offsetting increased market power by efficiencies as those would need to be passed on to consumers. The possibility that EU merger control has suffered from an under-enforcement bias since 2004 is further reinforced by the contemporaneity, in the same industries, of merger clearance decisions and *ex post* regulatory intervention (including abuse of dominance investigations, sector enquiries and the *ad hoc* intervention in the mobile roaming

23 See Commission Notice on the definition of the relevant market for the purposes of Community competition law [1997] OJ C372/5, paras 15–19.

market). As a result, the question arises whether the Commission's merger enforcement has been sufficiently effective in relation to anti-competitive transactions below the straight monopoly and near-monopoly level.<sup>24</sup>

## 2.2. Co-ordinated effects

In addition to unilateral conduct, the Horizontal Merger Guidelines also discuss the conditions under which co-ordinated conduct results in anti-competitive mergers. In doing so, the Guidelines follow closely the logic of the CFI's judgment in *Airtours*.<sup>25</sup> Thus, the focus of co-ordinated effects analysis in a merger context is on whether the change in the market structure following a merger increases the incentives to collude. The fact that collusion or parallel conduct was likely before the merger is irrelevant. What is of relevance is whether such conduct becomes more likely or is reinforced after a merger. In the differentiated products model introduced in this article, (see section 3.1. and Technical Annex 2: Merger Model) co-ordinated effects are not analysed, but this model is a good basis of setting the stage for the understanding of co-ordinated effects. Co-ordinated effects emerge if firms choose prices off the best response path, i.e. firms no longer choose prices or quantities as indicated by their best response functions (see "Technical Annex 1: Best Response Planes")—they will not maximise their short-term profits holding the other prices or quantities constant, but choose prices or quantities that increase profits *given* that the other prices or quantities move similarly. In a merger context, co-ordinated effects imply that due to the merger, such

24 Obviously, the very robust statistical evidence presented here only suggests a highly significant break in enforcement practice. On that basis alone (but possibly not if other factors are taken into account), it would also be compatible with the data to claim significant over-enforcement in the period before 2004. Note, however, that in their analysis of the first 10 years of EU merger control, Damien Neven and Lars-Hendrik Röller observed that:

"Overall, we find a low frequency of type I discrepancies, i.e. relatively few instances where the Commission has prohibited a merger that the market had anticipated as being pro-competitive. By contrast, we observe a high frequency of type II discrepancies, i.e. relatively numerous instances where the Commission failed to block or to impose remedies on mergers that the market had anticipated to be anti-competitive."

See D. Neven and L.-H. Röller, "Discrepancies Between Markets and Regulators: An Analysis of the First Ten Years of EU Merger Control" (2002) *Working Paper No: 10/2002, Institut Universitaire de Hautes Etudes Internationales, Genève*.

25 *Airtours* [2002] E.C.R. II-2585. See also *Bertelsmann AG v Independent Music Publishers & Labels Association (IMPALA)* (C-413/06) [2008] 5 C.M.L.R. 17 following the annulment of the Commission Decision of 19 July 2004 declaring a concentration to be compatible with the common market and the functioning of the EEA Agreement (COMP/M. 3333-Sony/BMG) in *Independent Music Publishers & Labels Association (Impala) v Commission of the European Communities* (T-464/04) [2006] E.C.R. II-2289; [2006] 5 C.M.L.R. 19.

behaviour has become substantially more likely, i.e. the merger allows for profitable deviations from the new unilateral equilibrium.

Deviating from the best response equilibrium—that is, from the short-term profit maximisation that characterises the new post-merger (unilateral) equilibrium—is not trivial from a game theoretic perspective. It at least requires an implicit but shared set of promises and threats. In a nutshell, every firm "promises" to keep its prices (quantities) above (below) the best response, i.e. it refrains from adjusting to the other firms' behaviour in a short-term profit-maximising way. This "promise" is credible if deviations, such as for instance a reversion to short run profit maximisation, are sufficiently deterred. The general scope for co-ordinated effects is therefore limited by the incentives to deviate from the co-ordinated price or quantity, and the incentives to deviate from behaviour required under punishment in order to render the "promise" credible in the first place.

The game theoretic study of collusion in economics has focused on these two effects and what the CFI identified as the three necessary conditions for the finding of co-ordinated effects (or collective dominance) in *Airtours*<sup>26</sup> directly draws from that literature:

"—first, each member of the dominant oligopoly must have the ability to know how the other members are behaving in order to monitor whether or not they are adopting the common policy. [...] There must, therefore, be sufficient market transparency for all members of the dominant oligopoly to be aware, sufficiently precisely and quickly, of the way in which the other members' market conduct is evolving;

—second, the situation of tacit coordination must be sustainable over time, that is to say, there must be an incentive not to depart from the common policy on the market. ... it is only if all the members of the dominant oligopoly maintain the parallel conduct that all can benefit. The notion of retaliation in respect of conduct deviating from the common policy is thus inherent in this condition. ... for a situation of collective dominance to be viable, there must be adequate deterrents to ensure that there is a long-term incentive in not departing from the common policy, which means that each member of the dominant oligopoly must be aware that highly competitive action on its part designed to increase its market share would provoke identical action by the others, so that it would derive no benefit from its initiative .;.

—third, to prove the existence of a collective dominant position to the requisite legal standard, the Commission must also establish that the foreseeable reaction of current and future competitors, as well as of consumers, would not jeopardise the results expected from the common policy."

Thus, promises of deviations from the best response path must be credible; that is, an appropriate punishment mechanism must be in place which renders short-term

26 *Airtours* [2002] E.C.R. II-2585 at [62]. See also the Horizontal Merger Guidelines §41.

reversions to profit maximisation or other short-term profit-increasing deviations less attractive than the co-ordinated behaviour. This necessitates a certain level of transparency so that deviations from the co-ordinated behaviour can be identified, punishment can be executed and deviations from punishment behaviour can be detected. In addition to these requirements for internal stability of collusion, entry conditions have to be such that the external stability is not endangered by entry.

Turning away from the non-co-operative game theoretic conditions for collusion to be feasible, and looking at over half a century of experimental research in economics<sup>27</sup> of direct relevance to co-ordinated effects analysis, reveals that collusion is the rule rather than the exception in small oligopolistic laboratory markets<sup>28</sup> and that “adequate deterrents” and “credible mechanisms” may not be as difficult to come by as the terms in themselves, or as formal models may suggest.<sup>29</sup>

Without going into the details of the contributions that experimental economics can make to competition policy in general<sup>30</sup> and merger policy and the EC Merger Regulation in particular,<sup>31</sup> it suffices to note that a strict interpretation of criteria that derive from formal game

<sup>27</sup> The first experimental research on oligopolies was published as early as 1959 by Hoggat, Sauermann and Selten. See H. Sauermann and R. Selten, “Ein Oligopolexperiment” (1959) 115 *Zeitschrift für die Gesamte Staatswissenschaft* 427; and A.C. Hoggat, “An experimental business game” (1959) 4 *Behavioral Science* 192.

<sup>28</sup> See for instance F. Maier-Rigaud, D. Wiesen and K. Parplies, “Experimental Economics and Competition Policy: Unilateral and Co-ordinated Effects in Competition Games” [2008] E.C.L.R. 408, which discusses a series of laboratory experiments conducted in the Directorate General for Competition and also in the Slovak Competition Authority.

<sup>29</sup> Friedman (See J.W. Friedman, “A Non-cooperative Equilibrium for Supergames” (1971) 28 *Review of Economic Studies* 1), for example, shows that a grim trigger strategy, that is, the strategy to choose the collusive output until one firm deviates and to then produce the competitive output thereafter, although not renegotiation proof, is sufficient to sustain collusion for a range of discount factors in a Cournot oligopoly. Although there are formal models where reversion to the Nash equilibrium is sufficient, game theoretic necessary and sufficient conditions appear generally to be overly restrictive and in stark contrast to the behaviour systematically observed in the laboratory. In addition, the notion of “credible punishment mechanism” or “deterrent mechanism” may sound more impressive to non-economists than they should, in light of the experimental evidence.

<sup>30</sup> See for example J. Hinloopen and H.T. Norman (eds), *Experiments and Competition Policy*, (Cambridge: Cambridge University Press, 2009). The volume covers more or less all areas of competition law with the exception of state aid, although most contributions are unfortunately not sufficiently tailored to the actual regulatory environment to be of direct relevance to competition law. See also M. Beckenkamp and F. Maier-Rigaud, “An experimental investigation of Article 82 rebate schemes” (2006) 2(2) *Competition Law Review* 1, analysing the relevance of behavioural effects in the assessment of rebate schemes in competition law.

<sup>31</sup> See, in particular, the recent efforts of Engel who has produced a series of applied contributions based on a meta-study of relevant experimental research on collusion that is relevant to merger control and cartels. See for example C. Engel, *Die Bedeutung der Verhaltensökonomie für das Kartellrecht* (Bonn: Max Planck Institute for Research on Collective Goods,

theoretic models is implausible in light of the empirical findings of modern behavioural economics.

Experimental research demonstrates that the move from a non-collusive equilibrium to a collusive outcome is frequently possible, even in settings where this collusive outcome can not necessarily be supported as collusive equilibrium by some plausible deterrent mechanism(s). To the extent that such settings are representative of at least some merger cases, the focus on standard game theoretic necessary and sufficient conditions for the existence of a collusive equilibrium can lead to systematic enforcement gaps in co-ordinated effects merger cases to the extent that such cases can be sustained by such a standard approach at all.<sup>32</sup>

Following the *Airtours* judgment, the Commission has generally not invoked co-ordinated effects as a theory of harm for challenging mergers. No subsequent Phase II decision has relied on co-ordinated effects as a principal instrument. Based on the findings of modern economics about the sustainability of co-operative market outcomes, a narrow interpretation of the *Airtours* criteria (rendering co-ordinated effects de facto irrelevant for merger control purposes) risks introducing another under-enforcement bias to the Commission’s enforcement policy.

We thus conclude that neither the SIEC test and the Horizontal Merger Guidelines, nor recent advances in the analysis of co-ordinated effects, can provide a ready explanation for the observed changes in the enforcement profile. In the following sections, we thus examine the role of two other factors potentially affecting enforcement outcomes, namely the role of competitors in the fact finding for merger investigations and the appeals risk attached to merger decisions.

### 3. Other potential parameters affecting enforcement outcomes

#### 3.1. Fact-finding and the role of competitors in merger investigations

Following this analysis, it remains difficult to reconcile the observed *ex post* enforcement profile with the

2008), where, among other things, the *Airtours* judgment is discussed from an experimental perspective; C. Engel, *Tacit Collusion—The Neglected Experimental Evidence* (Bonn: Max Planck Institute for Research on Collective Goods, 2007), where he decries that this “solid body of evidence is untapped by the legal community” (p.2) and C. Engel, “How much Collusion? A meta-analysis of oligopoly experiments” (2007) 3(4) *Journal of Competition Law and Economics* 491, where the meta-study is presented.

<sup>32</sup> Obviously, a merger could wrongly be considered innocuous if both, its unilateral and its co-ordinated effects are analysed separately and a significant impediment to effective competition (SIEC) would only arise once both effects are combined.

economic theory underlying the Horizontal Merger Guidelines. However, applying economic models to a given set of merger characteristics is only one part of a merger investigation. Before this analysis can be performed, the facts of a case need to be established. Defining the relevant product and geographic markets (and thus competitors' market shares), investigating firms' patterns of competitive interaction, establishing the competing products' market positioning, and similar fact-finding requires detailed market intelligence that is often in the possession of the same market participants that also stand to either benefit from or be harmed by the merger under investigation. In highly concentrated markets, the merging parties and their competitors almost by definition constitute a small number of firms who thus have a strong private interest in intervening in a merger enquiry to obtain their preferred outcome. By contrast, merging firms' customers' incentives to invest in lobbying the Commission to intervene in a merger decline the more dispersed the customer group is, because free riding on others' lobbying efforts becomes the dominant strategy. Where the merging firms' products are purchased by private individuals, their dispersed interests imply that effective merger control becomes a public good. It is thus likely that a substantial portion of the market intelligence gathered in the course of a merger investigation is supplied by competitors and by the merging firms themselves. This raises the question how the competition authority can make best use of this potentially biased information, when, otherwise preferable, information from consumers is not readily available.

As outlined in this article, the Horizontal Merger Guidelines recognise the internalisation of a pricing externality as a key merger effect. Absent a merger, each firm sets its prices (or quantities) in such a way that individual profits are maximised, without taking into account the effect of its own pricing decisions on competitors' profits. Formally, the internalisation effect can be described as follows. Consider the following simple profit function with constant marginal cost for each firm  $i$ , where  $p_{-i}$  is the vector of all other firms' prices:

$$\Pi_i := p_i q_i(p_i, p_{-i}) - c_i q_i(p_i, p_{-i}) \quad [1]$$

The well-known first order conditions for a profit maximum for each firm  $i$  become:

$$0 = \frac{\partial \Pi_i}{\partial p_i} = q_i(p_i, p_{-i}) + [p_i - c_i] \frac{\partial q_i}{\partial p_i} \quad [2]$$

When firm 1 merges with firm 2, the first order conditions for the two products of the merged entity become, however:

$$0 = \frac{\partial(\Pi_1 + \Pi_2)}{\partial p_1} = q_1(p_1, p_2, p_{-i}) + [p_1 - c_1] \frac{\partial q_1}{\partial p_1} + [p_2 - c_2] \frac{\partial q_2}{\partial p_1} \quad [3]$$

and

$$0 = \frac{\partial(\Pi_1 + \Pi_2)}{\partial p_2} = q_2(p_1, p_2, p_{-i}) + [p_1 - c_1] \frac{\partial q_1}{\partial p_2} + [p_2 - c_2] \frac{\partial q_2}{\partial p_2} \quad [4]$$

In a non-co-ordinated setting, this unilateral merger effect leads each firm to price higher because some of the lost customers will instead purchase the merger partner's product, now part of the same firm, thus still contributing to joint profits. If the merger enables the involved firms to generate efficiencies that lower marginal costs, the merging firms may be able to enhance profits even further by lowering prices to attract additional customers. The merging firms (except in hostile takeovers, where the target may oppose the transaction) thus have an incentive to try to persuade the Commission to approve a merger, whether or not it leads to higher prices.

Competitors also see their profits rise and possibly also their market share increase following a merger where the firms involved find it profitable to raise prices. By contrast, they are harmed if the merger generates efficiencies that result in lower prices because this decreases their profits and market share.

Hence, if competitors aim to maximise their absolute profits in a non-co-operative setting, their interest in a merger investigation runs directly counter to the objectives pursued by the Commission. They will endorse anti-competitive transactions and oppose pro-competitive ones. This has led some observers to be critical of the Commission's practice of attaching substantial weight to competitor submissions in merger investigations.<sup>33</sup>

This analysis rests, however, on the premise that firms are solely concerned about maximising their *absolute* profits. The underlying theory ignores, among other things, the fact that most firms are not managed by their owners and that, due to agency problems, the maximum profit may be unknown to firms' shareholders. Investors thus need to assess their firm's profits in relation to some easily observable benchmark. One of the more obvious

<sup>33</sup> See the rather representative view expressed in Kühn, "Collusion Theory in Search of Robust Themes" (2005) 5 *Journal of Industry, Competition and Trade* 207 who writes:

"it is an open secret that the Commission takes its arguments directly from those provided by the competitors opposed to the merger. [...] The consequence of relying on competitors to build a case against mergers is not just that mergers are blocked that should have gone through. It also means that truly anticompetitive mergers go through because there are no competitors protesting the merger. [...] The fatal consequence of regulatory capture by the competitors of the merging firms is that both types of mistakes in merger policy increase: there are more mergers approved that should not be approved and more mergers blocked that should not be blocked!"

See also the work by Neven and Röller, "Discrepancies Between Markets and Regulators: An Analysis of the First Ten Years of EU Merger Control" (2002) who suggest that more errors in clearing mergers than prohibiting mergers occur.

profitability benchmarks are the profits of other firms in the same industry. For example, shareholders may find it difficult to judge the performance of the management of an Austrian grocery chain in absolute terms. They may instead compare it to the performance of other Austrian grocery retailers and set the management's incentive schemes accordingly. This in turn will lead managers to optimise their performance relative to other Austrian grocery chains, rather than in absolute terms. They may thus be critical of a merger if it risks making their own profits and market share look worse compared to their competitors.

Formally, consider the following remuneration scheme  $S_2$  for the manager of firm 2, where “...” indicates the possibility of other—for instance, fixed—components in the scheme,  $\lambda$  denotes an appropriate scaling factor and the term  $(\bullet)$  is the ratio of own to industry profits at time  $t - 1$  that is being subtracted from the ratio of own to industry profits at time  $t$  with  $n$  being the number of firms in the industry.

$$S_2 := \dots + \lambda \left( \frac{\sum_{i=1}^{n_t} \Pi_{it}}{\Pi_{2t}} - \frac{\sum_{i=1}^{n_{t-1}} \Pi_{it-1}}{\Pi_{2t-1}} \right) \quad [5]$$

Clearly,  $S_2$  increases with an increase in the “own share” of industry profits over time, and decreases with a reduction in that share (unless counterbalancing elements are included in the scheme). Consider now a scheme that creates a link between own profits and the performance of the other firms in the market, such as the one depicted above. Such a management incentive scheme may be used by equity holders when it is not obvious what level of profits constitutes “strong” or “mediocre” performance. More specifically, for a merger to be in the interest or not in the interest of the management of the competing firm(s), it is no longer sufficient that competitor profits go up or down but relative profits must at least remain equal.<sup>34</sup> As a consequence, if a merger results in an increase in the equilibrium price of the competing firms and therefore clearly reduces consumer welfare, these competing firms may, despite the increase in their own profits, be against the merger (or demand remedies) in those cases where their profits relative to total industry profits decline.

As shown in more detail using a numerical example below, this enables us to identify three categories of mergers:

1. Anti-competitive merger leading to higher prices and competitors' relative profits remain stable or

<sup>34</sup> The case where competitor profits are going down and relative profits remain at least equal (i.e. merging party profits are going down proportionally or over-proportionally) is only a theoretical possibility because in such a case, no merger would be notified.

increase → competitors endorse anti-competitive merger.

2. Anti-competitive merger leading to higher prices and competitors' relative profits decline → competitors lobby against anti-competitive merger.
3. Pro-competitive merger leading to lower prices and competitors' absolute (and relative) profits decline → competitors lobby against pro-competitive merger.

Consider the following example that falls into category 1 and is based on a three-to-two firm merger in a differentiated products Bertrand market with constant marginal cost and equally imperfect substitutes resulting in merger specific cost efficiencies of 5 per cent.<sup>35</sup>

A three-to-two merger between firm 1 and firm 3 results in an increase in prices from a uniform price of 14 (mark-up of four over cost) to a price of 15.64 (mark-up of 5.14 compared to cost and 1.64 compared to pre-merger price) for product 1 and 3 and 14.73 (mark-up of 4.73 compared to cost and 0.73 compared to pre-merger price) for product 2. Given that prices for product 2 increased, we know that there is no countervailing quantity effect and indeed, firm 2 is selling 13.14 units more (85.14 instead of 72) than before. As a result, profits for the merged but also for the competing firm increases from a symmetric 288 per firm (with a total industry profit of 864) to 754.46 for the merged entity and 402.67 for the competitor. As profits for all firms increase after the merger, the standard prediction as to the truthfulness of the signal received from the competitor in the context of information requests applies. As can easily be verified, the share of profits from total industry profits increased from 33.3 per cent to over 34.8 per cent for the competitor so that even if the remuneration scheme was only in place for the competitor,<sup>36</sup> no “truthful” reporting would be observed. As a result, the incentives for the competitor, even under the remuneration scheme discussed above, are such, that this anti-competitive merger will be welcomed by the competing firm.<sup>37</sup>

<sup>35</sup> The full model is spelled out in the Annex under “Technical Annex 2: Merger Model”. In this numerical example, the following parameter values have been used:  $a = 100$ ,  $b = 18$ ,  $c = 10$ ,  $d = 8$ , and  $\alpha = 0.95$  (i.e. merger specific cost efficiencies of 5%).

<sup>36</sup> Note that this would require the remuneration system to be applied asymmetrically only to the competitor as the merger would not take place if the remuneration scheme was universally applied. By definition, if the relative share of total profits increases for the competitor after a merger from three-to-two, the relative share of the merged entity declines correspondingly. If decisions in all firms are based on the remuneration scheme discussed in this article, the merger would not be observed to begin with, a beneficial side effect from a competition authority's perspective of the remuneration scheme.

<sup>37</sup> Note that in a more complex scenario with more competitors left after the merger, asymmetric costs, or different degrees of substitution between products, it is, however, possible to imagine a situation where the share of total industry profits increases for

Consider now a slight variation in the parameters introduced above that leads to a scenario as described in category 2. All parameter specifications remain the same but assume that merger specific efficiencies are no longer five per cent but result in a 10 per cent constant marginal cost reduction for the merged entity. As all other parameters remain the same, the pre-merger equilibrium values mentioned above remain valid. In that case, the new equilibrium prices for products 1 and 3 are 15.34 and for product 2, 14.59. Firm 2 produces 10.7 units more for a total quantity of 82.7 and its profits increase to 379.99, whereas the new profits of the merged entity are 803.36. As before, this merger reduces consumer welfare despite the rather large merger-specific efficiencies.<sup>38</sup> In contrast to the previous numerical example, however, the competitor loses ground with respect to its share of total industry profits. Despite the fact that its own profits increased by almost 32 per cent, the share of these profits from total industry profits went from 33.3 per cent to 32.1 per cent. Under the remuneration scheme posited, the merging firms will find their relative share of profits increasing through the merger, but the competitor will complain about the merger unless remedies are considered that would allow its share of total industry profits to at least remain constant. Obviously, remedies may allow the competitor to participate in the part of the merger benefits that relate to the merger specific cost efficiencies.<sup>39</sup>

How can we distinguish between an anti-competitive merger where the competitors under such a remuneration scheme are complaining and a pro-competitive one where the competitors are complaining because their profits are reduced? Clearly, there is a range of efficiencies for which competitor profits are sufficiently large for the merger to be anti-competitive, but not large enough to also guarantee at least an equal share of

both, the merged entity and some of its competitors to the detriment of others. In that case, we are potentially in the same scenario as the one discussed later in this article, as these competitors may face a reduction in their share of total profits but may still gain from the merger in absolute terms.

<sup>38</sup> Although the consumer surplus increases slightly from 410.79 to 413.17 compared to the scenario with lower efficiency gains, it remains below the pre-merger outcome of 432. The reason for this is that the internalisation of the price externalities that existed prior to the merger between firms 1 and 3 overcompensates the beneficial effect on consumer welfare of lower production costs due to the merger. It should also be noted that the consumer surplus of consumers consuming product 2 always increases but not sufficiently to overcompensate the reduction in consumer surplus for those buying from the merged entity.

<sup>39</sup> Note that with efficiencies above 32%, i.e.  $\alpha < 0.68$ , the competitor will actually face a reduction in profits and therefore be against the merger no matter what remuneration scheme is chosen. This is the scenario portrayed under category 3. In fact with  $\alpha = 0.68$ , prices and quantities remain unchanged for all firms after the merger and the merger is therefore not harming consumers. In that case the merged entity earns 460.8 more—which is exactly its cost savings on the total quantity produced, i.e. 144 units multiplied with the cost saving of 3.2 per unit. As a result, consumers do not benefit from the efficiency gains at all.

total industry profits compared to the situation prior to the merger. In such cases, competitors under the remuneration scheme discussed will be particularly helpful in the competitive analysis, because their incentives are aligned with the Commission. Obviously, the range of efficiencies for which this is true depends on the cross-price elasticities of the products considered. The closer the substitutes are, the larger the gains from internalising the pricing externalities between the merging parties and, subsequently, the merger becomes more attractive for competitors, reducing the threshold at which efficiency gains have a detrimental effect on competitor profits.

Hence, as shown in this article, even a relatively small modification of the standard perfect-information Bertrand-Cournot game structure used for analysing merger effects changes the potential value of information submitted by competitors significantly.<sup>40</sup> At least some competitors' lobbying efforts may thus be aligned with the Commission's objective of preventing anti-competitive mergers. A reliance on competitor submissions therefore does not necessarily lead to enforcement errors, provided that the underlying incentives are carefully investigated in order to distinguish accurate from misleading submissions.

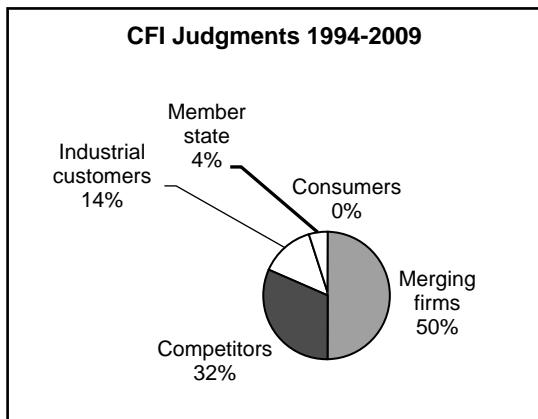
Nonetheless, because consumers' interests are even better aligned with the Commission's objective of protecting competition, their incentives and ability to submit meaningful information should be further developed. One way of achieving this would be to assist the existing consumer lobbies in developing their capabilities to produce submissions for merger investigations and to challenge clearance decisions that may be harmful to consumers.

### 3.2. Asymmetric risk profile attached to merger decisions

The Commission's merger decisions are subject to review by the European courts. Since 1994, 22 merger decisions<sup>41</sup> have been challenged before the CFI. The vast

<sup>40</sup> Obviously, all addressees of information requests are bound to reply truthfully. Nevertheless, the incentives for a firm play an important role once lobbying efforts and the provision of additional market information are concerned. For a description of the rather impressive lobbying efforts of firms in competition procedures, see P. Marsden et al, "Lobbying competition law & policy?" (2009) 1 *Concurrences* 11.

<sup>41</sup> Only distinct decisions under arts 6 or 8 of the EC Merger Regulation, where the Court of First Instance (CFI) had issued a judgment (including interim judgments) by July 31, 2009, are counted. (No double counting of cases where multiple appeals were lodged in a single case. For example, *General Electric Company v Commission of the European Communities* (T-210/01) [2005] E.C.R. II-5575 and *Honeywell International, Inc v Commission of the European Communities* (T-209/01) [2005] E.C.R. II-5527 were counted as one single appeal. We have also excluded from the analysis appeals against procedural

Figure 7: Appeals statistics 1994–2009<sup>44</sup>

majority of appeals against Commission interventions in merger cases have been rejected, but in 2002 the Commission suffered a series of three annulments<sup>42</sup> of prohibition decisions. Of the 22 cases against which appeals were lodged, 11 (50 per cent) were lodged by one or both of the merging firms, seven (32 per cent) were lodged by competitors, three (14 per cent) came from industrial customers of the products in question and one appeal was lodged by a Member State.<sup>43</sup> No appeal has so far been lodged by a consumer organisation.

The appeals statistic highlights the asymmetric litigation risk faced by the Commission in merger procedures—not only is it more risky, in terms of likelihood of an appeal, to act against the interests of the merging parties and their competitors, but there is virtually no appeal risk from adopting a clearance decision in cases where only final consumer interests are harmed.<sup>45</sup>

aspects of merger investigations because they are by definition of interest mainly to the merging parties. In any case, to the best of our knowledge, no consumer organisation has ever lodged an appeal). The information on the CFI judgments is available at <http://curia.europa.eu/jurisp/cgi-bin/form.pl?lang=en> [Accessed August 25, 2009].

<sup>42</sup> *Tetra Laval BV v Commission of the European Communities* (T-5/02) [2002] E.C.R. II-4381 and *Tetra Laval BV v Commission of the European Communities* (T-80/02) [2002] E.C.R. II-4519; *Schneider Electric SA v Commission of the European Communities* (T-310/01) [2002] E.C.R. II-4071 and *Schneider Electric SA v Commission of the European Communities* (T-77/02) [2002] E.C.R. II-4201; *Airtours* [2002] E.C.R. II-2585.

<sup>43</sup> *Poland v Commission of the European Communities* (T-41/06), order of April 10, 2008, not yet reported (against the Commission Decision of October 18, 2005 declaring a concentration to be compatible with the Common Market to Regulation 139/2004 (COMP/M.3894-UNICREDITO/HVB)).

<sup>44</sup> As of July 31, 2009.

<sup>45</sup> Discussing the institutional design of the US Merger review system, Frankel, an attorney at the US Department of Justice, Antitrust Division, notes that:

“whereas a determination by the reviewing antitrust agency—the U.S. Department of Justice Antitrust Division (DOJ) or the Federal Trade Commission (FTC)—that a merger is anticompetitive is subject to challenge and judicial review, a contrary determination is not. Thus, false positives at the agency level may be corrected by (and are more

	1994–2002	2003–2008
Total cases	1,946	1,876
Prohibitions	21	2
Mean Pct	1.1%	0.1%
SD	0.0065121	0.001758
F-test (prob)	0.0104156	

Figure 8: F-test statistic on prohibition decisions

Hence, it is conceivable that the Commission’s merger policy under the SIEC test has been guided by a risk minimisation strategy, whereby merger policy seeks to minimise the risk of a decision becoming the subject of an appeal before the courts. We explore this hypothesis by adjusting the time periods underlying the Fisher Exact and the F-test performed above. Testing the independence of the modified observation periods, i.e. adjusting the test to include the number of prohibition decisions in the period prior to the 2002 court decisions against the successive years leads again to a highly significant result, that is, the hypothesis  $H_0$  that data of both periods emanate from the same population can be rejected with an even lower probability of 0.007 per cent ( $p \leq 0.00007$ ; two-sided;  $N = 3822$ ),<sup>46</sup> suggesting that the annulment decisions, rather than the introduction of the Horizontal Merger Guidelines, may be the more likely cause for the drop in enforcement intensity. Applying the same test to all Phase II interventions, the p-value drops to 0.002 per cent ( $p \leq 0.00002$ ; two-sided;  $N = 3822$ ).<sup>47</sup> For completeness, the F-test results, subject to the important caveats discussed above, are reported in Figure 8 and Figure 9.

As the appeals profile and stakeholders’ incentive structures analysed above show, a risk minimisation strategy risks undermining the stated aim of the

often deterred by) review on the part of an independent judicial body whereas false negatives on the part of the agency are almost always final.”

(L. M. Frankel, “The Flawed Institutional Design of U.S. Merger Review: Stacking the Deck Against Enforcement” (2008) 1 *Utah Law Review* 159). The author concludes that “institutional design is structured so as to lead to systematic underenforcement” (Frankel, “The Flawed Institutional Design of U.S. Merger Review” (2008) 1 *Utah Law Review* 159). Obviously, the institutional imbalance discussed here is likely to be of a less severe nature.

<sup>46</sup> The Fisher Exact statistic is calculated based on the following contingency table  $\begin{bmatrix} 1925 & 1874 \\ 21 & 2 \end{bmatrix}$ .  $H_0$ , i.e. that the data until 2002 contain an equal amount or less prohibition decisions is rejected with ( $p \leq 0.99999$ ; one-sided;  $N = 3822$ ) and hypothesis  $H_0$  that the data after 2002 contain more prohibition decisions is rejected with ( $p \leq 0.00004$ ; one-sided;  $N = 3822$ ).

<sup>47</sup> The Fisher Exact statistic is calculated based on the following contingency table  $\begin{bmatrix} 1583 & 1834 \\ 93 & 42 \end{bmatrix}$ .  $H_0$ , i.e. that the data until 2002 contain an equal amount or less prohibition decisions, remedies and withdrawals in Phase II is rejected with ( $p \leq 0.99999$ ; one-sided;  $N = 3822$ ) and hypothesis  $H_0$  that the data after 2002 contain more prohibition decisions, remedies and withdrawals in Phase II is rejected with ( $p \leq 0.00001$ ; one-sided;  $N = 3822$ ).

	1994–2002	2003–2008
Total cases	1,946	1,876
Ph-II	93	42
Mean Pct	4.8%	2.2%
SD	0.0107782	0.004563
F-test (prob)		0.0744559

Figure 9: F-test statistic on Phase II interventions

Horizontal Merger Guidelines to protect consumers against welfare losses from anti-competitive mergers. By its very nature, a consumer welfare driven merger policy will sometimes clash with the interests of merging firms and their competitors, which will occasionally lead them to invoke their right to appeal.

A possible policy response would be to rebalance the risk profile faced by the Commission when adopting merger decisions by enabling consumer lobbies to play a more active role in merger procedures before and after the decision. This could be achieved, for example, by enabling consumer organisations to more easily lodge appeals against merger (clearance) decisions.<sup>48</sup> Such an enhanced role of consumer organisations in merger procedures would be consistent with the logic of the Commission's private enforcement initiative, which aims to involve third-party organisations in redressing consumer harm in case of private damages. For example, in order to empower consumer organisations to play a more active role in merger investigations, including appeals before the European courts, designated organisations could be given access to a "competition fund" that would help them cover the substantial costs of effectively participating in the procedure.<sup>49</sup> Access to the fund would be open to national and European

48 Consumer organisations currently already benefit from a privileged role in being heard as third persons under art.11(c) of Commission Regulation 802/2004 of April 7, 2004 implementing Council Regulation 139/2004 on the control of concentrations between undertakings, [2004] OJ L133/1. Although the exact structure of such a consumer empowerment scheme remains to be defined, this role could be extended along the following lines. One initial step could, for example, be to give consumers or consumer associations extended rights under the merger procedure, i.e. include consumer organisations more systematically in market investigations (requests for information under art.11 of the Merger Regulation), systematically allow their presence at state of play meetings, allow them to request a hearing and allow them access to key documents in the Commission's file. This could lay the basis for their subsequent role in court appeals and may satisfy the notion of "individual concern" from art.230 (4) of the EC Treaty, the concerns of the Court of Justice (see *Stichting Greenpeace Council (Greenpeace International) v Commission of the European Communities* (C-321/95 P) [1998] E.C.R. I-1651 and the restrictions imposed by the Treaty itself on the possibility of challenging Community acts by individuals.

49 Although the private enforcement initiative of the Commission does not touch upon funding of actions, nor on the destination of reclaimed damages that were not passed on to the individual victims, the creation of a litigation fund has been discussed in the context of collective redress (see, e.g. the recommendation of the UK Civil Justice Council) and it may be possible to link such a fund to the work of consumer organisations in merger cases.

consumer organisations which have built up a certain level of skill to play an active role in the Commission's merger procedure. It would also enable them to hire specialised legal advisers where necessary.

## 4. Conclusion and outlook

In this article, we have taken a look back at five years of merger control under the 2004 EC Merger Regulation and the Horizontal Merger Guidelines, applying a series of simple statistical tests to the large sample of decisions published over the five-year period. The enforcement outcomes after five years of merger control under the SIEC test were compared with the 10-year enforcement record from 1994 to 2003. Enforcement activity has dropped significantly when measured by the number of prohibition decisions, as well as by other second-phase interventions taken together (prohibitions, Phase II remedies and withdrawn notifications) and even if Phase I remedies are included. The decrease is, at first sight, difficult to reconcile with the consumer welfare analysis underlying the SIEC test and set out in the Horizontal Merger Guidelines. The nature of the few prohibition decisions that did still occur (merger to near-monopoly) and the contemporaneity, in the same industries, of clearance decisions and *ex post* interventions (art.82 of the EC Treaty, sector enquiries and the *ad hoc* intervention in the mobile telephony market) point to a possible under-enforcement bias.<sup>50</sup> The near-complete disappearance of co-ordinated effects as a theory of harm pursued by the Commission reinforces this assessment, which cannot be readily explained by the introduction of the SIEC test and the Guidelines.

We have then set out to search for alternative explanations for the drop in enforcement activity. When analysing the incentives of various stakeholders to lobby in favour or against a merger, we find that competitor submissions become potentially more valuable when ownership and management are separated than under the standard Bertrand-Cournot oligopoly models. At least some competitors' incentives are therefore likely to be aligned with the Commission's objective of preventing anti-competitive mergers. Nonetheless, in its merger investigations, the Commission is faced with the dilemma that competitors, although they typically have superior resources and incentives to provide the Commission with market intelligence, will often do so

50 This perception appears to be shared by the legal community: "Meanwhile, DG Comp did not block a single merger last year. The last high-profile prohibition was the 2007 rejection of Ryanair's acquisition of Irish national carrier, Aer Lingus. 'Occasional prohibitions are necessary to keep people on their toes,' says one source. 'At present, there is a feeling that a merger will always get through, albeit with remedies in some cases.'" "Rating Enforcement 2009" (2009) *Global Competition Review*, available at <http://www.globalcompetitionreview.com/surveys/survey/161/Rating-Enforcement/> [Accessed September 1, 2009].

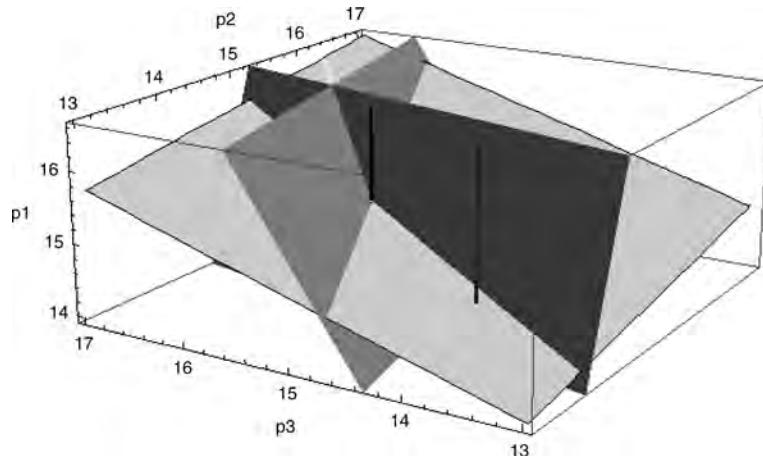


Figure 1: Best response planes with pre and post merger equilibrium and possible co-ordinated outcomes

in a biased way. By contrast, consumer organisations have the incentives to lobby against anti-competitive mergers, but often lack the resources and know-how to provide the Commission with market information of a level comparable to competitors. At the same time, the Commission faces the risk that prohibition decisions are appealed before the CFI, whereas clearance decisions in practice incur a litigation risk only if they harm competitors' interests. Our simple statistical analysis of more than 3,800 merger decisions in almost 16 years suggests that this asymmetric litigation risk (reinforced by the courts' three annulment decisions), rather than the SIEC test itself, may have contributed to the drop in enforcement activity following the coming into force of the 2004 EC Merger Regulation.

A possible policy response to the drop in merger enforcement would be to rebalance the risk profile, and thereby the internal incentive structure faced by the Commission, when adopting merger decisions.<sup>51</sup> This could be achieved, for example, by increasing the involvement of consumer organisations in merger procedures and enabling them to lodge appeals against merger decisions more easily. For this purpose, designated organisations could be given access to a "competition fund" that would enable consumer organisations to build the necessary capabilities to participate in merger investigations (and possible appeals) at a level comparable to merging firms and their competitors. It would also allow them to hire specialised legal advisers when necessary (for example, in an appeal procedure). Financially,

the fund could be supported by the EU budget or by the introduction of filing fees for merger notifications.

Despite the necessary up-front investment, a more symmetric *ex ante* enforcement mechanism would seem preferable, in terms of effectiveness, time and procedural costs, to *ex post* enforcement efforts via extensive sector inquiries or antitrust procedures under art.82 of the EC Treaty (abuse of dominance). It may thus even find the support of industry stakeholders. Although the relatively simple analysis performed in this article has produced a number of informative results, there remains substantial scope for further research. Future work should, in particular, aim to analyse the observed enforcement outcomes within a more comprehensive modelling framework, including a more detailed assessment of the various stakeholders' incentives, information asymmetries and the impact of asymmetric litigation risk.

## Technical Annex 1: Best Response Planes

Figure 1 depicts the post-merger best response planes for the pricing of all three products. It shows the pre-merger price equilibrium (i.e.  $p_1^* = p_2^* = p_3^* = 14$ ) as (the foremost) vertical bar.<sup>52</sup> The new unilateral equilibrium (i.e.  $p_1^* = 15.34$ ;  $p_2^* = 14.59$ ;  $p_3^* = 15.34$ ) as a vertical black bar at the intersection of the three best response planes. The non-vertical light coloured line visible in the most backward part of the Figure depicts a path of possible symmetric co-ordinated price outcomes/equilibria that is more visible once the graphic is turned as depicted in Figure 2.<sup>53</sup> The actual parameter values are based on scenario 2 values as generated with the model described in Technical Annex 2.

<sup>51</sup> As Frankel notes:  
"Although it is difficult to know what an optimal system would look like, we should know what it would not look like. It would not have an institutional design in which merging firms dissatisfied with the decision of the expert agency can take another 'bite at the apple,' while ultimate customers that may be harmed by the merger have little or no realistic recourse. [...] consumers, the primary beneficiaries of the antitrust laws, would be well-served if the antitrust community were to begin contemplating these issues."

Frankel, "The Flawed Institutional Design of U.S. Merger Review" (2008) 1 *Utah Law Review* 159, 219.

<sup>52</sup> For visibility a bar is depicted instead of a point. The exact point is given by the intersection with the darkest plane hidden by the lightest one.

<sup>53</sup> It is calculated as an equal percentage price increase above the post merger unilateral equilibrium. It is only one possible path as market shares or profits could for instance also be used.

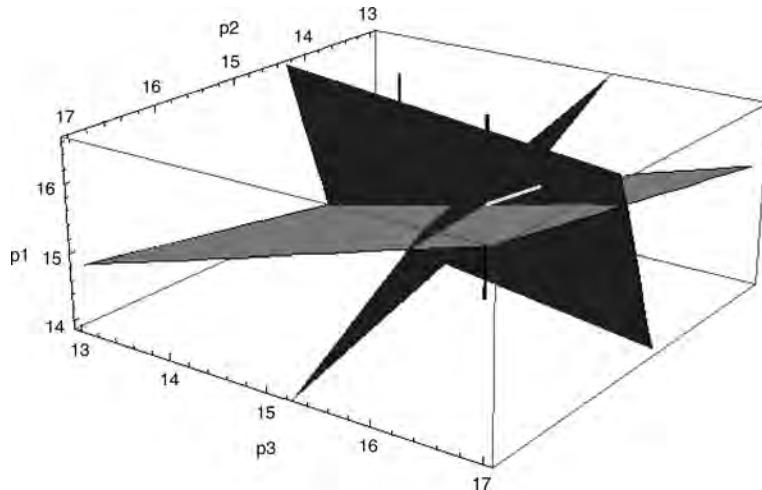


Figure 2: The same as Figure 1 but with a different angle, rendering the co-ordinated effects price path more visible.

## Technical Annex 2: Merger Model

Consider the following three-firm Bertrand game with (horizontally) differentiated products. The demand curves are of the following form:

$$D_1 := a - bp_1 + d(p_2 + p_3) \quad [1]$$

$$D_2 := a - bp_2 + d(p_1 + p_3) \quad [2]$$

$$D_3 := a - bp_3 + d(p_1 + p_2) \quad [3]$$

Where  $a, b, d > 0$ . Based on these demand functions, the products produced by the three firms are substitutes, that is an increase in the competitors price results in an increase in own-quantity demanded (i.e.  $\frac{\partial D_i}{\partial p_j} > 0$  with  $i \neq j$ ). Parameter  $d$  measures the product differentiation and therefore also the degree of substitutability. As  $d$  is equal for all three firms, we are considering the symmetric case where all three products are equally imperfect substitutes to each other.<sup>54</sup>

We further assume identical constant marginal cost (denoted by  $c$ ) so that the profit functions can be written as:

$$\Pi_1 := (p_1 - c)(a - bp_1 + d(p_2 + p_3)) \quad [4]$$

$$\Pi_2 := (p_2 - c)(a - bp_2 + d(p_1 + p_3)) \quad [5]$$

$$\Pi_3 := (p_3 - c)(a - bp_3 + d(p_1 + p_2)) \quad [6]$$

Calculating the corresponding best response functions and solving the system of equations results in the following prices:

<sup>54</sup> In addition to the negative own-price elasticity and positive cross-price elasticities, we further assume a negative overall price elasticity of the whole demand system.

$$p_1^* = p_2^* = p_3^* = \frac{a + bc}{2(b - d)} \quad [7]$$

As long as  $b > d$ , equilibrium prices are positive and individual demand is more sensitive to own-price effects than to competitor price effects.

Now consider a merger of firm 1 and firm 3 that results in merger specific efficiencies captured by the parameter  $\alpha \in [0, 1]$ . The new entity continues to offer product 1 and 3 so that three different products continue to be on the market.

The profit function of the new entity can be written as:

$$\begin{aligned} \Pi_M = & (p_1 - \alpha c)(a - bp_1 + d(p_2 + p_3)) \\ & + (p_3 - \alpha c)(a - bp_3 + d(p_1 + p_2)) \end{aligned} \quad [8]$$

Whereas the profit function of firm 2 remains as before.

Resulting equilibrium prices are:

$$p_1^* = p_3^* = \frac{a(2b + d) + bc(d + 2b\alpha - 2d\alpha)}{4b^2 - 4bd - 2d^2} \quad [9]$$

$$p_2^* = \frac{bcd - ab - b^2c - bcd\alpha + cd^2\alpha}{2b^2 - 2bd - d^2} \quad [10]$$

This results in a new constraint on the parameters as  $b > d$  is no longer sufficient. Equilibrium prices are only positive if  $b > \frac{d}{\sqrt{3}-1}$  (or transformed into a constraint on  $d$ :  $d < \sqrt{3b} - b$ ).