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# Discrepancies Between Markets and Regulators: an Analysis of the First Ten Years of EU Merger Control

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## Abstract

This paper gathers evidence on apparent discrepancies between EU decisions and stock market's anticipations of the anti-competitive consequences of particular mergers. We consider a sample of about 100 mergers, which include all phase II cases, and explore some of the factors that may account for such discrepancies. 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. We argue that type II discrepancies could be associated with the scope of the dominance concept, the lack of an explicit efficiency defence or the political economy of merger control, such that the Commission has not pursued the objective that it has been assigned. By contrast, type I discrepancies can only be associated with the political economy of merger control. Considering the pattern of discrepancies (across countries, across incentives to influence the Commission and over time), some preliminary observations reveal that competitors may play an important role in favour of anti-competitive deals but surprisingly not against pro-competitive mergers, that discrepancies are more frequent in phase I and possibly when large countries are involved.

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August 2002

## Abstract

This paper gathers evidence on apparent discrepancies between EU decisions and stock market's anticipations of the anti-competitive consequences of particular mergers. We consider a sample of about 100 mergers, which include all phase II cases, and explore some of the factors that may account for such discrepancies. 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. We argue that type II discrepancies could be associated with the scope of the dominance concept, the lack of an explicit efficiency defence or the political economy of merger control, such that the Commission has not pursued the objective that it has been assigned. By contrast, type I discrepancies can only be associated with the political economy of merger control. Considering the pattern of discrepancies (across countries, across incentives to influence the Commission and over time), some preliminary observations reveal that competitors may play an important role in favour of anti-competitive deals but surprisingly not against pro-competitive mergers, that discrepancies are more frequent in phase I and possibly when large countries are involved.

***"it boils down to whether you trust the agencies or the stock market. I'll take the stock market any day!"<sup>1</sup>***

## **I. Introduction**

The purpose of this paper is to gather and interpret some evidence with respect to the first ten years of EU merger control's implementation. In particular, we present some evidence on apparent discrepancies between EU decisions and stock market's anticipations of the anti-competitive consequences of particular mergers. Finally, we explore some of the factors that may account for such discrepancies.

We identify, for a sample of mergers, whether the stock market anticipated that the operation would benefit consumers by considering the reaction to the stock price of the competitors. We consider this evidence in the light of the actual decisions taken by the EU. The comparison reveals both type I and type II "discrepancies", i.e. instances where on the face of it, the Commission "should have" allowed a merger that it has prohibited and instances where the Commission has allowed a merger that it "should have" prohibited. We identify three factors, which may explain systematic discrepancies (beyond differences in assessment which would presumably introduce some random noise). First, the objective of the EC Merger Regulation (ECMR) may not be to prevent mergers which hurt consumers because of the incomplete overlap between dominance and significant increases in price. Significant price increases may indeed take place without leading to the creation or strengthening of a dominant position. Second, a discrepancy between the stock market's anticipation of the anti-competitive consequences of a merger and actual decisions could be associated with a bias in the evaluation of efficiencies. Indeed, we observe that the ECMR necessarily makes an implicit assumption about a benchmark level of efficiencies. Excessive optimism by the Commission with respect to this benchmark could explain why some mergers are allowed when the market anticipates that the merger will be anti-competitive. Third, the discrepancies may be associated with the "political economy" of merger control, i.e. influence that is brought to bear on the Commission so that it may not have followed the objective that it has been assigned.

The last factor has been much emphasized in recent discussions and deserves a more detailed discussion. First, the Commission is sometimes criticized for giving excessive attention to the welfare of competing firms. According to some observers, the Commission's attention to the concerns of competitors is associated with its apparent willingness to listen to them and the credence that it attaches to their point of view.<sup>2</sup> The Commission may rely excessively on the claims that they put forward and fail to realise to what extent the interests of consumers and those of competitors may diverge. However, there is a more benign interpretation behind the observation that the Commission tends to consider the fate of competitors. Its attention could be partly dictated by the substantive criteria under which the Commission operates and in particular the dominance criteria; arguably, a firm's ability to act independently of its competitors might indeed depend heavily on the fate of these competitors<sup>3</sup>.

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<sup>1</sup> Bruce Kobayashi, former economist at the FTC and Department of Justice (Antitrust division), quoted in *Fortune Magazine*, April 14th, 1997.

<sup>2</sup> For instance, C. James (Assistant Attorney General for Antitrust at the US Department of Justice) pointed out that US antitrust laws protect "competition and not competitors" and note a "significant point of divergence" with the EU on the issue (see James, 2001).

<sup>3</sup> See Kovacic, 2001. He discusses why US and EC authorities had a divergent assessment in the *Boeing/McDonnell Douglas* case. He shows that the source of the divergence is the EU's concern about the entrenchment of dominance which arose even though the EU had recognised that McDonnell was no longer a real force.

Second, the Merger Task Force (MTF) is sometimes criticized for relying on somewhat speculative claims; that is, it is sometimes asserted that the anti-competitive concerns identified by the Commission lack solid foundations, in particular in terms of economic analysis, or that there is insufficient empirical support behind these concerns (see for instance Muris, 2001). The recent decision by the Court of First Instance in the *Airtours* case supports this point of view. In its ruling, the Court criticizes the Commission for insufficient reasoning in its analysis of collective dominance, for having relied on insufficient evidence and for not having adequately considered the evidence submitted by the parties. In addition to collective dominance, the MTF's approach to geographic market definition and portfolio effects has been the subject of concern. However, it is inevitable that any anti-trust authority should have a margin of appreciation, and the burden of proof that the Commission should appropriately carry is a matter of degree.

Third, the Commission's approach is sometimes characterized as being biased against small countries. As discussed in the chapter by Horn and Stennek, the concern underlying this criticism seems to be that current EU policy prevents firms in small countries "from merging and obtain a leading global position". This critique can be interpreted in several ways, which are fully discussed by Horn and Stennek. At least one version of this critique suggests that large member states are in a position to exert more influence on the Commission's decisions. However, while there is some evidence that member states could influence Commissioners in the early years of merger control (see Neven et al, 1993), the current Commissioner is widely credited for his independence and for protecting his staff from political influence (see for instance, Burnside, 2001).

According to some commentators (see for instance Alhborn, 2002), the origin of these shortcomings can be traced back to the institutional framework in which EU merger control operates and in particular to the multiple roles played by the Commission, which essentially acts as investigator, judge and jury. According to this approach, EU merger control is not sufficiently accountable and its decision making process enjoys excessive discretion. In this context, individual civil servants, and more generally the hierarchy of the MTF, can pursue their own objectives at the expenses of those assigned by the regulation. These interests and objectives can in turn be manipulated by third parties, including competitors and member governments.<sup>4</sup> In other words, according to this approach, bureaucratic capture is at the source of the shortcomings of EU merger control and those can thus only be addressed by making the Commission more directly accountable.<sup>5</sup>

This paper considers some direct evidence on the issue of whether the Commission may have pursued different interests from those that it has been assigned, taking the anticipation of the financial market as a benchmark. The paper characterizes the pattern of discrepancies<sup>6</sup> between decisions and market anticipations across various dimensions and tries to account for them. We discuss the respective role played

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<sup>4</sup> See Neven, Nuttal and Seabright (1993) for a discussion of this and some evidence relating to the first five years of EU merger control. See Neven and Röller (2001) for a model where third parties can influence the decision of a competition agency which is subject to ex post monitoring by the government.

<sup>5</sup> Public attention has also focused on a number of cases like *Volvo/Scania*, *Airtours*, *Worldcom/MCI*, *Schneider/Legrand*, *GE/Honeywell* or *Tetra Laval/Sidel*. Senior executives of the companies involved have openly expressed dissatisfaction with the outcome of the procedure (as one might have expected) but also with the procedure itself (see for instance, Financial Times, October 29th, 2001). They claim that the MTF has abused the power that it has been granted by the regulation and in all but one of the cases mentioned above, companies have appealed the Commission's decision to the Court of Justice. These decisions to appeal presumably give an indication both that the companies do not consider to have been granted a fair hearing and that they anticipate that a different decision may be reached on appeal, thereby indicating possibly that, according to their perception, the Commission did not pursue in its decision the objectives that it had been assigned.

<sup>6</sup> Discrepancies may be a more appropriate term than "errors", given that the rules imposed by the ECMR can explain the divergence between decisions and what the stock anticipation may have dictated and given that the assessment of the competitive consequences of potential mergers from stock market data suffers from its own shortcomings.

by the concept of dominance, the lack of an explicit efficiency defence and the influence that third parties could be expected to exercise.

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 has failed to block or to impose remedies on mergers that the market had anticipated to be anti-competitive. Considering the pattern of discrepancies (across countries, across incentives to lobby and over time), some very preliminary observations reveal that competitors play an important role in favour of anti-competitive deals but surprisingly not against pro-competitive mergers, that discrepancies are more frequent in phase I and possibly when large countries are involved.

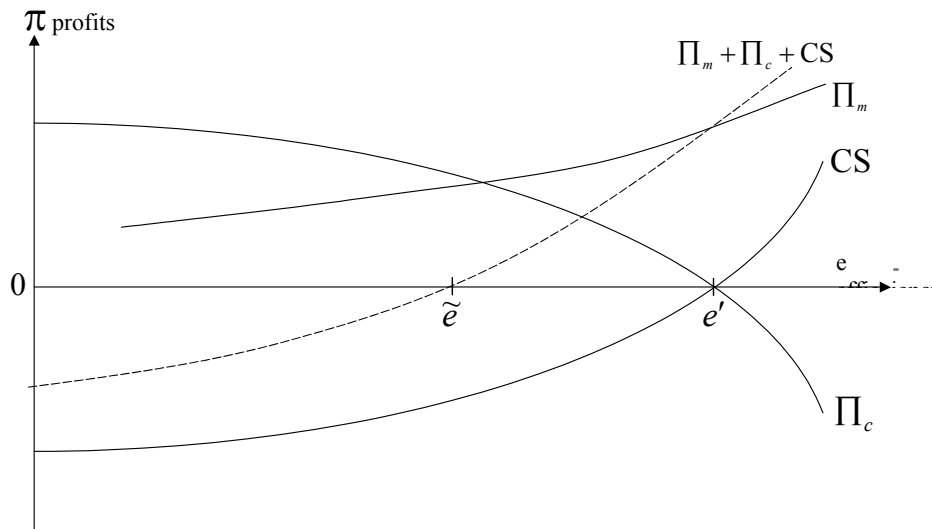
## **II. A benchmark from the stock market**

As indicated above, we consider a sample of merger cases reviewed by the EU and derive the stock market's implicit anticipation of the consequences of the proposed mergers for the consumers. We then compare actual decisions with what the stock market would have indicated if the objective of the EU were to prevent price increases. We discuss these discrepancies and identify the circumstances where, independently of any outside influence, the MTF could allow a price-increasing merger, or prohibit a merger that reduces price. This section first describes the method that we use in order to infer the stock market's implicit anticipation of mergers' consequences for the consumers. We subsequently outline our understanding of the objective function assigned by the ECMR and the constraints that it imposes, and finally describe our sample.

### II.1. Identification of anti-competitive mergers from competitors' profits

The consequences of a merger for merging parties, competitors and consumers in the context of a prototype model are described in Figure 1. It is assumed that before the merger,  $N$  firms compete with the same marginal cost. The new entity, which results from the merger (involving  $M$  firms out of  $N$ ) is assumed to operate with a lower marginal cost. The marginal cost saving achieved by the merger (relative to the common pre-merger level) is represented on the horizontal axis and dubbed  $e$  (for efficiency). The vertical axis represents the profits. The four curves in Figure 1 present respectively; the change in the profit of merging parties (that is, the level of profit of the merged entity less the sum of the individual profits of the merging parties before the merger, denoted  $\Pi_m$ ); the change in the profit of competitors (all firms not involved in the merger, denoted  $\Pi_c$ ); the change in the consumer surplus (denoted  $CS$ ); and the change in welfare (defined as the sum of profits and consumer surplus denoted  $\Pi_m + \Pi_c + CS$ ).

**Figure 1. Efficiency, Profits and Welfare**



There are five striking features from this figure. First, it is immediately apparent that mergers will be not attractive (both privately and in terms of welfare) if they do not achieve at least some level of efficiency. Second, the change in consumer surplus increases as the level of efficiency achieved by the merger increases. This accords with intuition, as part of the efficiency achieved by the merged entity will be passed on to consumers. Third, when the efficiency is large enough, the reduction in the number of competitors entailed by the merger, which normally leads to higher prices, is more than compensated by the effect of higher efficiency, which leads to lower prices, other things being equal. As indicated by Figure 2.1, there is a critical level of efficiency ( $e'$ ) which ensures that the merger does not affect consumers. At this critical level, prices are unchanged. Fourth, the change in welfare is also increasing with the level of efficiency. Higher efficiency leads to higher aggregate profits (this is not shown) and higher consumer surplus, thereby increasing welfare. Figure 1 also indicates the level of efficiency,  $\tilde{e}$ , which is required in order to ensure that welfare increases as a consequence of the merger. This level is naturally less than the level, which is required to ensure that consumers are not hurt. Fifth, and most importantly for our purpose, we observe that the change in profits accruing to competitors mirrors the changes in consumer surplus: profits to competitors fall as the level of efficiency achieved by the merger increases and the level of efficiency which ensures that competitors do not gain is exactly the level which ensures that consumers are not hurt. In other words, in this framework, if a merger hurt competitors, it will benefit consumers and vice versa. That is also to say that if we can obtain a reliable measure of the extent to which competitors could be hurt by a merger, we will also have a measure of whether the merger is pro-competitive (i.e. benefits consumers).

The idea that mergers, which hurt competitors, will tend to be pro-competitive has long been recognized and has been first exploited by Eckbo (1983). He proposes to use the stock market reaction to the announcement of a merger (a so called “event study”) to evaluate the impact of the merger on competitors’ profits. A positive reaction will normally indicate that the merger is expected to enhance the profits of competitors and hence that it will be anti-competitive (and vice-versa). The change in the value of competitors’ equity can also be taken as a measure of the (discounted) additional profits that is expected to accrue to them as a consequence of the merger. In what follows, we will adopt this methodology and accordingly identify mergers that were expected to be anti-competitive from reactions in the equity of competitors.

Questions naturally arise with respect to the generality of the above framework in which competitor gains can be used to identify consumer losses, as well as with respect to the reliability

of stock market returns as a proxy for the change in competitors' profits. We take each question in turn.

The consequences of a merger for competitors and consumers outlined in the framework above accord with intuition. Formally, this intuition holds for standard models like Cournot competition and homogenous products (with general demand functions<sup>7</sup>). The shape of the profit and consumer surplus functions also hold for some specifications with product differentiation and/or Bertrand competition.<sup>8</sup> The exact correspondence between the sign of the change in competitors' profits and the change in consumer surplus depends on the assumption of Cournot competition. However, as long as the level of efficiency which guarantees that competitors' profits are unchanged remains in the neighbourhood of the efficiency level  $e'$ , our analysis should continue to yield empirically informative results.

Nevertheless, a number of limitations of the above framework need to be emphasised. First, it is assumed that competitors will not be weakened to the point that they will prefer to leave the industry.<sup>9</sup> If this would arise, both competitors and consumers could be hurt. Second, our framework assumes that the efficiency of competitors is not affected by the merger. This may not be appropriate in the presence of technological spillover across firms so that part of the efficiency gains also accrue to competitors. In those circumstances, the correspondence between competitor gains and consumer losses may no longer hold. Competitors and consumers could gain at the same time. Third and most importantly, this framework focuses on unilateral effects in horizontal mergers. With respect to co-ordinated effects, the matter may not be very different, to the extent that competitors are expected to gain and consumers are expected to lose (whatever the efficiency gain). However, conglomerate mergers may lead to outcomes where the correspondence between the change in consumer surplus and the change in competitor profits is lost. For instance, when merging firms sell complement goods as a bundle (as in *GE/Honeywell* with avionics and engines), competitors will typically lose even though consumers may gain or lose depending on particular features of demand. Similarly tied sales of substitute or independent goods will typically hurt consumers but may increase or decrease competitors' profits depending again on particular features of demand.<sup>10</sup>

Let us now turn to the measurement of competitors' expected profits. As indicated above, the change in the expected profit of competitors associated with a merger is typically measured by a so-called event study, which attributes "abnormal" changes in their stock price or equity value to the merger around the day of its announcement. Leaving technical issues aside for the moment (such as the identification of abnormal changes in stock prices), a number of issues of interpretation should be kept in mind; first, the announcement of a merger may have little effect on the stock price of competitors, in particular when the merger affects only a small part of the business of the firms being considered. Second, when participants in the stock market contemplate several possible mergers, the announcement of a particular merger will change the likelihood of many alternative configurations.<sup>11</sup> As a consequence, a change in the stock price of a firm not

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<sup>7</sup> This property holds for the so called "smooth Cournot games", as defined by Vives (2000). A proof of this can be obtained upon request from the authors.

<sup>8</sup> For instance, these properties hold for a symmetric system of product differentiation à la Shubik and Levitan (1980). See Neven (2001) for a derivation of this result in a different context.

<sup>9</sup> However the concern that competitors may be led to leave the industry has not been prominently raised in the merger decisions that are included in our sample (our sample only includes decisions until the summer of 2000, whereas *GE/Honeywell* and *Tetra Laval/Sidel* have been prohibited in 2001).

<sup>10</sup> Our sample includes only a few cases where "conglomerate" concerns were raised (in particular, *Tetra Pak/Alfa Laval* and *Guinness/Grand Metropolitan*).

<sup>11</sup> More generally, it should be recognized that the stock market could anticipate clearance and prohibitions. At the time of the announcement, the market surely takes into account the antitrust procedure and attributes a probability to the



involved in the merger may reflect more the change in the likelihood of alternative mergers involving that firm (the “in play” effect) rather than the consequences of the announced merger for its profit (see Stennek and Fridolfsson, 2001). If one assumes that the market anticipated an increase in the value of the “competitor” in alternative merger configurations, a fall in its stock price may not be a reliable indicator that the merger is pro-competitive (but an increase in its stock price will remain a good indicator that the merger is anti-competitive). It is not clear however whether this “in play” effect is important empirically; Salinger and Shuman (1988) test for the presence of such effects and conclude that it may matter in some cases, but it does not matter on average across a sample of cases. Third, it is worth keeping in mind that abnormal returns around the day of announcement may provide a fairly imprecise estimate of the change in profits. However, as confirmed by Schwert (1996), there is a lot of evidence in support of the semi-strong hypothesis of market efficiency with respect to mergers. Hence, the change in stock prices is likely to provide an unbiased estimate of the change in profit. Nevertheless, the variance around this estimate could be large.

## II.2 Matching markets and regulators

As discussed in the previous section, the anticipation by the stock market of the anti-competitive consequences of a merger can be inferred from competitors’ stock prices. In order to identify possible discrepancies between the anticipation of the market and the decision of the regulators, one should clarify what the regulator was meant to achieve.

The ECMR is concerned with the creation or reinforcement of a dominant position as a result of which effective competition would be significantly impeded (Article 2.3). The regulation also indicates that efficiencies can be taken into account in the analysis as long as consumers are not hurt (Article 2.1b). Altogether, the objective set by the ECMR would thus appear to involve the protection of consumer welfare. According to this approach, the Commission would be expected to consider potential price increases and evaluate whether efficiencies are sufficient to ensure that prices would fall (i.e. make sure, in terms of Figure 2.1 that the actual level of efficiency is above  $e'$ ). According to this approach, it is straightforward to assess whether the Commission has pursued the objective that it was assigned; all it takes is to check the sign of the expected change in competitors’ profit. If it is positive and the merger has been prohibited, then the Commission has taken the “right” decision, and vice versa. Of course, some difference in appreciation between markets and regulators could take place so that different outcomes will be observed. But there should be no systematic bias induced by differences in appreciation.

Two difficulties arise, however, with this interpretation. The first difficulty arises from the concept of dominance, which is not closely associated with the prospect for price increases that hurt consumers. That is, the Commission may have found that a merger does not create or strengthen dominance even if a price increase can be expected or the other way round. If anything, it would appear that significant price increases could take place even if dominance is not created or strengthened. There has been increasing recognition of this in the context of the debate surrounding the Green Paper on the reform of the ECMR (see Vickers, 2002, for a succinct view on this). This arises because firms with moderate market share may still be able to achieve

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merger being cleared. Hence, the change in the value of the stock at the time of the announcement is equal to the probability that the deal will be cleared times the value that will accrue if it is realised. In order to identify whether deals are perceived as anti-competitive or not, we only use the sign of the expected change in the stock price. The expected change is of the same sign as the conditional change (i.e. given that the merger takes place), the former being a proportion of the latter. Hence, the fact that the market may anticipate the outcome of the antitrust procedure does not introduce a bias in our procedure.

significant price increases if they sell close substitutes<sup>12</sup>. Hence, a finding that the Commission has not prohibited a merger that is expected to increase price may be due to the fact that the firms involved fell short of being dominant – and not the fact that the Commission has not pursued the objective that it was assigned. By contrast, a finding that the Commission has prohibited a merger, which was not expected to increase price, could not be explained by the scope of the concept of dominance.

The second difficulty arises from the observation that efficiency considerations are very seldom considered explicitly in actual decisions. As pointed out by Röller et al (2001), the objective of protecting consumer welfare and the Commission's apparent neglect of efficiency considerations would be hard to square with the fact that most mergers are allowed. Indeed, if no efficiency is ever taken into account, all horizontal mergers should be prohibited. Hence, the Commission's objective is probably best described as the protection of consumer welfare, while assuming a certain level of efficiency. According to this approach, it is only where competitive concerns are serious that the Commission may explicitly explore whether efficiency gains much exceed the benchmark level, which is assumed for all cases.<sup>13</sup> To the best of our knowledge, the Commission has never found such a situation or at least has never publicly said so.

Hence, the absence of a systematic evaluation of efficiencies in each case could involve a bias in Commission decisions; if the benchmark level of efficiency which is assumed by the Commission exceeds average efficiency gains, mergers which hurt consumers could be allowed by the Commission. The opposite, however, is not true because the Commission's approach is asymmetric,<sup>14</sup> if the Commission finds that there is a competitive concern and that the benchmark level of efficiency is insufficient to ensure that prices will not increase, it will investigate actual efficiencies. Assuming that its evaluation is not biased, it will normally estimate the actual level of efficiency and hence will not prevent mergers which exhibit sufficient efficiency to ensure that prices do not increase.

In sum, mergers which hurt consumers could be allowed for three distinct reasons. First, mergers could lead to a price increase, but not create or strengthen dominance. Second, the benchmark level of efficiency, which is assumed by the Commission, could be biased upwards. Finally, it could be that mergers have been allowed because the Commission did not pursue the objective that it has been assigned, possibly under the influence of the merging entity and its competitors. By contrast, there is only one systematic reason<sup>15</sup> which may explain why mergers which benefit

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<sup>12</sup> Or to put it differently because a firm typically needs to be the largest in the market in order to be considered dominant. The absence of a clear doctrine on collective dominance in the early years may also be a significant factor – such that mergers that lead to collusion could not be considered to give rise to a dominant position.

<sup>13</sup> This interpretation is consistent with the wording of the regulation and with some of the rare references to efficiency that one finds in actual decisions. For instance, in *Aérospatiale-Alénia/De Havilland* (a prohibition), the Commission acknowledged that it had considered efficiencies but that efficiencies were not sufficient to overturn the presumption that the merger was anti-competitive. Some observers however doubt that the Commission pays more than lip service to efficiency claims put forward by the parties (see Röller et al, 2001 for instance). The fact that the Commission may have turned efficiency into an offence in some cases should also induce some reluctance on the part of merging parties in claiming efficiencies. This may further contribute to an effective neglect of efficiency considerations.

<sup>14</sup> If one assumes (see previous footnote) that the Commission hardly ever considers efficiencies, then both types of discrepancies could arise. Mergers which benefit consumers could be prohibited.

<sup>15</sup> Different discount factors could be another source of discrepancy, in particular if the regulator gives more weight to the immediate future and if efficiencies only accrue after a lag (so that a pro-competitive merger first appears to be anti-competitive).

consumers are prohibited, namely that the Commission did not follow the objective that it had been assigned, possibly under the influence of competitors.<sup>16</sup>

One should however note that the Commission does not consider that the scope of the dominance concept has been a constraint and hence that it could account for possible discrepancies. The Green Paper (EU, 2001) on the reform on the ECMR, while discussing the wisdom of changing the substantive test, acknowledges that some mergers which increase price may not be covered by the concept of dominance. However, the Green Paper dismisses this as an “interesting hypothetical discussion” and notes that the Commission has never experienced a case where this has been an issue (see para 166, page 40).

### II.3 Data and Results

Our sample includes all phase II mergers reviewed by the EU during the first ten years of implementation of the ECMR (until mid-2000), and a matching sample of phase I cases (that were selected randomly). For each case, we have identified merging firms and competitors from the decision and the date of the announcement from the financial press. For each firm (merging firm or competitor), we have computed the abnormal return<sup>17</sup> on the day of announcement as well as the abnormal change in the value of equity. We add the change in the value of equity across merging partners to obtain an aggregate measure of the value of merging firms. When several competitors are identified in the decision (as is often the case, in particular when several relevant markets are considered), we have added the change in the value of equity across firms to obtain the aggregate effects on competitors. Because of difficulties in identifying competitors or their stock, we end up with 48 phase II cases (out of 64 phase II cases during the period under review) for which we have complete information. We encountered more difficulty in identifying competitors in phase I cases, which are typically less detailed and had to draw additional cases.<sup>18</sup> We end up with a sample of 57 phase I cases. The list of cases included in the final sample is provided in the Appendix.

**Table 1. A sample of decisions taken by the Commission during 1990-2000**

PHASE I		PHASE II		
<b>Art. 6.1.b</b>	<b>Art. 6.1.b</b>	<b>Art. 8.2</b>	<b>Art. 8.2</b>	<b>Art. 8.3</b>
Clearance	Clearance with remedies.	Clearance	Clearance with remedies.	Prohibition

<sup>16</sup> If the influence that different parties can exercise on the Commission is proportional to the resources that they devote, such an outcome should not be observed as the merging parties should always be in a position to trump the competitors, at least in the context of the prototype model considered above (see Neven and Röller, 2001, for a formal analysis of this in a common agency framework).

<sup>17</sup> Several methods can be used to compute abnormal returns. Some authors estimate a Capital Asset Pricing Model (CAPM) equation which regresses the stock return on a constant and the market return (or an industry index) over a sample which immediately precedes a window of about 100 days around the announcement. Abnormal returns before the announcement are then computed as the difference between actual returns and the predicted returns obtained from the estimated equation. For the part of the window which follows the announcement, a symmetric procedure is used (such that a second CAPM equation is estimated on a sample which immediately follows the windows and use to compute normal returns during the second part of the window). Abnormal returns are then cumulated over the span of the window to obtain a cumulated abnormal return.

A much simpler approach can be followed, in which the abnormal return is simply computed at the difference between the return on the stock and the return on an appropriate index on the day of announcement. Given the difficulty in obtaining unbiased parameter estimates in CAPM equations (in particular when the stock accounts for a significant proportion of the index), we have adopted this simpler approach. We have obtained all stock prices, equity values and indices from Datastream.

<sup>18</sup> Our sample includes approximately the same number of phase I cases that have been allowed with remedies and phase I cases that have been allowed without remedies. This partly reflects the more detailed information which is provided in decisions for which remedies have been imposed. Relative to the actual population of phase I decisions, our sample thus over-represents cases where competitive concern has been found (during the sample period, there are 45 phase I decisions with remedies and 982 decisions without remedies). Overall our sample thus includes all phase II cases and about 2/3 of phase I cases in which remedies have been imposed.

Negative gains (pro-competitive)	14	18	7	17	2	58
Positive Gains (anti-competitive)	15	10	3	13	6	47
	29	28	10	30	8	105

Table 1 reports the number of cases in our sample according to the decisions taken by the Commission and according to the stock market evaluation of their competitive consequences.

First, we observe across all decisions that 55 % were considered to be pro-competitive. That is also to say that the distribution of efficiency gains across mergers has a median which is only slightly above the level of efficiency which would ensure that consumers are not hurt ( $e'$  in Figure 2.1).

This observation should be contrasted with the usual finding of event studies such that a majority of mergers fail to generate value for the shareholders of acquirers (even though the variance is large and some mergers generate very high returns), such that target shareholders obtain handsome premia and such that acquirers and target shareholders combined earn small but positive returns on average (see Bruner, 2002, for a survey). Leaving aside the issue of the allocation of the value being generated across merging firms (acquirer and target) and the puzzle that many mergers are not expected to generate value *ex ante* for acquirers, these observations suggest, in terms of Figure 2.1, that the average level of efficiency associated with potential mergers is fairly low (close to the point where the sum of profits would cross the horizontal axis). Hence, it would appear that the average<sup>19</sup> level of efficiency, as inferred from the stock market reaction of competitors is significantly *larger* than the average level of efficiency which can be inferred from the stock market reaction of merging firms.<sup>20</sup> This observation is a bit of a puzzle. One possible interpretation is that mergers *do* generate significant efficiencies which affect competitors but that the shareholders of the merging firms do not manage to obtain the rents associated with these efficiencies (possibly in part because of ineffective corporate control).<sup>21</sup> If this interpretation is correct, it would suggest that the common presumption that efficiencies associated with mergers tend to be small, which relies on evidence of gains to merging firms, could be misplaced. Gains may have been underestimated.

Table 1 distinguishes between different types of decisions depending on the article of the Merger Regulation that was applied. In phase I, matters are clear with respect to Article 6.1.b decisions which refer to clearance without conditions. Similarly in phase II, Article 8.1 and 8.3 refer respectively to clearance without conditions and prohibition. The issue then arises of how to interpret Article 6.1b and 8.2 decisions which include undertakings (respectively in phase I and phase II). Whether a decision with undertaking can be seen as giving rise to a discrepancy with the assessment of the stock market depends crucially on what the stock market could anticipate. That is, if the stock market could not anticipate the imposition of remedies, any instance where the stock market anticipated that the merger would be anti-competitive does not give rise to discrepancy if one assumes that remedies do indeed meet the competitive concerns. Similarly, any instance where the stock market anticipated that the merger would be pro-competitive does not give rise to a discrepancy – except to the extent that the remedies may not have been necessary. Hence, if the

<sup>19</sup> Assuming that the average is close to the median.

<sup>20</sup> The usual finding with respect to the creation of value for merging firms is broadly confirmed in our sample. We find 51 cases (out of 105) in which the merger creates value for the merging firms.

<sup>21</sup> This interpretation would also be consistent with the observation from *ex post* studies that most mergers do not generate additional profits relative a control group, as long as the rents appropriated by management are recorded as additional costs and hence reduce reported profits.

market does not anticipate the remedies, neither 6.1.b nor 8.2 decisions should be considered as potential discrepancies.

The matter is different if one assumes that the stock market could anticipate the remedies. In this case, any instance where the market anticipates that the merger would be anti-competitive would be associated with a type II discrepancy. But of course, any instance where the market anticipates that the merger would be pro-competitive would not be associated with a discrepancy. Hence, the frequency of type II discrepancies depends crucially on what we assume about the anticipation of the stock market. In what follows and in the absence of any clear presumption in favour of either, we will consider both assumptions, even if we tend to favour the assumption that the market could not anticipate the remedies.<sup>22</sup>

Table 1 indicates that the frequency of type I discrepancies, such that the Commission has prohibited seemingly pro-competitive mergers, at 25 %, is relatively low, even if one should not possibly attach too much weight to this observation given the low overall number of prohibitions in the sample<sup>23</sup> (only 8 out of 13 prohibitions effectively imposed by mid-2000). As indicated above, type I discrepancies can only be explained by outside influence that may have led the Commission to pursue an objective which is different from the one that it has been assigned (assuming that the efficiency defense is asymmetric). Of course, competitors, which are hurt by pro-competitive mergers, would have an incentive to lobby against these mergers. This hypothesis will be further investigated below.

The frequency of type II discrepancies, i.e. situations where the Commission has allowed seemingly anti-competitive mergers, is larger (see Table 1); the frequency of discrepancy among those cases which do not involve remedies is 46 %. If one includes cases involving remedies and assumes that the market did not anticipate remedies, the frequency is 19 %. If one assumes that the market did anticipate remedies, the frequency is 42 %. Frequencies in the range of 40 % seems rather large, being close to what one would obtain if decisions and the anti-competitive consequences were independent discrete random variables.

As discussed above, at least three reasons can explain type II discrepancies, namely the scope of the dominance concept, the lack of an explicit efficiency defence and the influence that third parties can bring to bear on the Commission. If one follows the Commission and dismisses the limited scope of dominance as being unimportant, it would seem that only excessive optimism with respect to efficiencies and outside influence could explain type II discrepancies. Given the importance of such discrepancies, it would seem likely that both should play a role. However, additional information is required in order to disentangle the two. The last section of the paper uses the variance in the discrepancies across countries, time and incentive to influence in order to explore the issue.

### **III. The pattern of discrepancies**

In order to further investigate the role of efficiencies and outside influence on the probability of observing discrepancies, we compute the correlation between discrepancies and a number of variables which represent different sources of outside influence. Various sources have been discussed above. First, competitors and merging firms can be expected to influence the agency; merging firms will do so in order to enhance the probability that the deal will be accepted and we will represent this incentive by the expected profit that firms accruing to the merging firms (at the time of announcement). This variable is denoted MGAINS. The

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<sup>22</sup> Purely on the grounds that remedies are the outcome of a negotiation between the Commission and the parties over which it is difficult to form a prior.

<sup>23</sup> Interestingly, one of the two cases identified as a type I discrepancy is *Airtours/First Choice*. Some comfort can presumably be found from the fact that the discrepancy has been redressed by the Court of First Instance, at least in law, if not in terms of business opportunity.

incentive of competitors depends on the effect of the merger on their profit; if the merger is expected to increase their profit, they will influence the agency in the same direction as the merging firms. We denote as PCGAINS the expected profit accruing to competitors at the time of announcement, when positive. At the opposite, when the merger is expected to decrease their profit (and hence is pro-competitive), competitors can be expected to influence the agency against the merger. We denote as NCGAINS the absolute value of the expected loss of profits to competitors.

Second, as discussed above, some observers suggest that there is a bias against small countries and in particular that there is a bias against mergers involving firms from the same country. We represent this by a dummy variable (CSPEC) which take the value 1 if the merging firms come from the same country. Another version of the “small country” argument is that large countries are in a better position to influence the Commission. We represent this by a dummy variable (BIG) which takes the value 1 if one of the merging company has its headquarter and main operation in one of the large EU countries (France, Germany, Italy, Spain or the UK).

In addition, in order to investigate whether discrepancies may become more frequent over time, we consider a variable (N), which is the chronological order of the case. We also introduce a dummy (PHASE1) to identify decisions taken in phase I.

Table 3 presents the correlation<sup>24</sup> between our preferred measure of discrepancy and these variables.<sup>25</sup> The discrepancy variable (MISTAKE) is a dummy variable, which identifies all cases of discrepancies (both type I and type II) and assumes that remedies could not be anticipated.

Looking at Table 3 a few interesting findings can be identified. First, it appears that the probability of observing a discrepancy is higher in Phase I. Second, when competitors gain from the merger, their incentive to influence the agency is positively correlated with the occurrence of discrepancies. By contrast, when competitors lose, their incentive to influence the agency against the merger is negatively correlated with the occurrence of discrepancies. However, one should not attach too much significance to this finding, which is based on very few observations. Third, the occurrence of mistakes seems to be more frequent when companies from large countries are involved (but the level of significance of this variable is low). Finally, the preliminary data exploration in Table 3 suggests that there is no apparent bias against mergers which involve firms from the same country and no evidence that discrepancies are more frequent over time.

Overall, the analysis confirms that the influence that competitors can bring to bear on the Commission may be associated with type II discrepancies. That is, competitors may be successful in influencing the Commission to allow mergers that it should not allow according to the objective that it has been assigned. Interestingly, if this finding confirms the importance of competitors in the political economy of EU merger control, it is not consistent with the claim (for instance in *GE/Honeywell*), namely that competitors can influence the Commission to prohibit cases that it should allow.

The analysis also suggests that increasing the period of time during which the Commission has to undertake the analysis might significantly reduce the occurrence of discrepancies.

#### **IV. Conclusion**

Evaluating merger decisions ex post is a notoriously difficult exercise, because it requires a comparison between the actual market developments induced by the decision with the developments that would have

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<sup>24</sup> Given that our measure of discrepancies is a dummy, we use Kendall correlation coefficients. The probability that the coefficient is equal to zero is reported together with (below) the coefficients.

<sup>25</sup> Alternative empirical investigations could of course be undertaken. In particular, one could estimate a probit model where the probability of observing a discrepancy is a function of the variables listed above. However, the estimation of such a model involves several econometric issues including endogeneity (in particular between the dependent variables and the expected profits of firms and competitors) that we have solved satisfactorily at the moment. This will be undertaken in further work.

taken place otherwise. The construction of this counterfactual is fraught with difficulties and cannot be realistically undertaken for a large sample of decisions. Rather than considering ex post developments, this paper considers an alternative ex ante benchmark, namely the anticipation by stock market of the anti-competitive consequences of particular mergers. The reliability of this benchmark should not be overemphasised and our results should be seen as indicative. However, the sheer importance of the type II discrepancies that we observed can presumably not be explained solely by the shortcomings of the methodology.

If our results support the presumption that the political economy of merger control matters, they do not support the common claim (in particular among US practitioners) that the role of competitors is important towards the discrepancies that arguably matters most, namely the type I discrepancies such that pro-competitive mergers are prohibited. In addition, our results emphasize the importance of the reforms that the Commission is considering at the moment, as presented in the Green Paper. In particular, to the extent that type I discrepancies are less frequent than type II discrepancies, and to the extent that the former cannot be explained by the lack of an explicit efficiency defence, our results are consistent with the view that the lack of an explicit efficiency defence is a significant source of discrepancy. Reform in this area may thus be welcome. Our results also indicate that reform may be useful in areas that are not considered by the Green Paper and in particular in the area of procedures and institutional reforms. Regarding procedures, the Green Paper envisages an increase in the effective length of phase II, to allow for a proper consideration of remedies. Our results suggest that more time may also help in phase I, or alternatively that a phase II should be opened more frequently. Regarding institutional reforms, it is beyond the scope of this paper to suggest how reforms could be undertaken but it would seem that the proper role of competitors in merger proceedings needs to be addressed.

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## Appendix

**Table 2 Summary statistics**

<b>Variable</b>	<b>N</b>	<b>Mean</b>	<i>Std Dev</i>	<b>Median</b>	<b>Minimum</b>	<b>Maximum</b>
MISTAKE	105	0.19048	0.39456	0	0	1.00000
N	105	53.00000	30.45488	53.00000	1.00000	105.00000
PHASE1	105	0.54286	0.50055	1.00000	0	1.00000
PCGAINS	105	5.87978	40.48817	0	0	408.92499
NCGAINS	105	2.27365	13.25389	0.00116	0	124.52205
MGAINS	105	0.63603	15.69393	0	82.84876	78.91254
BIG	105	0.73333	0.44434	1.00000	0	1.00000
CSPEC	105	0.29524	0.45834	0	0	1.00000

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MISTAKE	105	0.19048	0.39456	0	0	1.00000
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NCGAINS	105	2.27365	13.25389	0.00116	0	124.52205
MGAINS	105	0.63603	15.69393	0	82.84876	78.91254
BIG	105	0.73333	0.44434	1.00000	0	1.00000
CSPEC	105	0.29524	0.45834	0	0	1.00000



**Table 3 - Correlations**

Kendall Tau b Correlation Coefficients, N = 105								
Prob >  r  under H <sub>0</sub> : $\tau=0$								
	Mistake	N	Phase1	Pcgains	Ncgains	Mgains	Big	Cspec
MISTAKE	1.00000	-0.10503	0.20170	0.36399	-0.37352	0.05747	0.12797	-0.04811
		0.1917	0.0397	<.0001	<.0001	0.4752	0.1919	0.6237
N	-0.10503	1.00000	-0.70788	0.03926	-0.03308	0.02675	-0.06354	0.15767
	0.1917		<.0001	0.5863	0.6399	0.6860	0.4296	0.0500
PHASE1	0.20170	-0.70788	1.00000	0.01301	0.02454	-0.05618	0.00865	-0.24428
	0.0397	<.0001		0.8822	0.7756	0.4852	0.9297	0.0127
PCGAINS	0.36399	0.03926	0.01301	1.00000	-0.65173	-0.06408	-0.02862	0.02369
	<.0001	0.5863	0.8822		<.0001	0.3747	0.7446	0.7874
NCGAINS	-0.37352	-0.03308	0.02454	-0.65173	1.00000	0.05606	-0.06515	0.00383
	<.0001	0.6399	0.7756	<.0001		0.4281	0.4491	0.9645
MGAINS	0.05747	0.02675	-0.05618	-0.06408	0.05606	1.00000	0.01458	-0.02658
	0.4752	0.6860	0.4852	0.3747	0.4281		0.8562	0.7413
BIG	0.12797	-0.06354	0.00865	-0.02862	-0.06515	0.01458	1.00000	-0.22348
	0.1919	0.4296	0.9297	0.7446	0.4491	0.8562		0.0227
CSPEC	-0.04811	0.15767	-0.24428	0.02369	0.00383	-0.02658	-0.22348	1.00000
	0.6237	0.0500	0.0127	0.7874	0.9645	0.7413	0.0227	

### List of cases. EU merger cases (1990-1999)

Case	Acquiring Firm	Target Firm(s)	<i>IV. fase</i>	Decision date
M.0004	Renault	Volvo	1	07.11.90
M.0012	Varta	Bosch <sup>1</sup>	2	12.04.91
M.0024	Mitsubishi Corp.	Union Carbide Corp.	1	04.01.91
M.0042	Alcatel	Fiat	2	21.01.91
M.0043	Fiat	Alcatel	2	21.01.91
M.0050	At&T	Ncr Corporation	1	18.01.91
M.0053	Boeing	Alenia	2	04.06.91
M.0057	Digital Equipment Int.	Mannesmann	1	22.02.91
M.0068	Tetrapak <sup>1</sup>	Alfa-Laval	2	19.03.91
M.0081	Viag	Continental Can	1	06.06.91
M.0121	Ingersoll Rand Co.	Dresser Inc.	1	18.12.91
M.0126	Accor	Wagons-Lits	2	16.12.91
M.0129	Digital Equipment Corp.	Philips Electronics	1	26.08.91
M.0141	Uap	Transatlantic HDG.	1	11.11.91
M.0165	Alcatel Cable S.A.	Aeg Kabel	1	18.12.91
M.0184	Gran Metropolitan	Cinzano S.A.	1	07.02.92
M.0190	Nestle'	Eaux Vittel	2	25.03.92
M.0214	Du Pont	Imperial Chemical Industries	2	03.06.92
M.0221	Asea Brown Boveri Limited	Trafalgar Hse	1	26.05.92
M.0222	Mannesmann	Hoesch	2	14.07.92
M.0236	Ericsson	Ascom	1	08.07.92
M.0253	Btr	Pirelli	1	17.08.92
M.0259	British Airways	.	1	27.11.92
M.0269	Shell	Montedison	2	07.02.94
M.0286	Zuerich Insurance Company	Municipal Mutual Insurance	1	02.04.93
M.0308	Kali	Mdk <sup>2</sup>	2	16.09.93
M.0315	Mannesmann	Vlourec Dalmine	2	20.09.93
M.0331	Fletcher Challenge	Methanex	1	31.03.93
M.0354	Cyanamid	Shell	1	01.10.93
M.0358	Pilkington	Societa' Italiana Vetro <sup>2</sup>	2	02.09.93
M.0361	Neste	Statoil	1	17.02.94

### List of cases. EU merger cases (1990-1999) (forts.)

M.0430	Procter & Gamble	Vp Schickedanz <sup>1</sup>	2	17.02.94
M.0437	Matra Marconi Space N.V.	British Aerospace Space Systems Ltd.	1	23.08.94
M.0447	Schneider Electric S.A.	AEG A.G.	1	01.08.94
M.0458	Electrolux	AEG A.G.	1	21.06.94
M.0468	Siemens	Italtel (Stet) <sup>2</sup>	2	14.10.94
M.0469	Bertelsmann	Deutsche Bundespost Telekom <sup>2</sup>	2	18.07.94
M.0477	Daimler Benz	Kässbohrer <sup>1</sup>	2	14.10.94
M.0479	Ingersoll Rand	Man	1	28.07.94
M.0484	Thyssen Stahl	Acciai Speciali Asti , Afl Falck <sup>1</sup>	2	21.10.94
M.0498	Commercial Union	Suez	1	12.09.94
M.0508	Credit Commercial De France (CCF)	Berliner Handels Und Frankfurter Bank (BHF)	1	28.10.94
M.0527	Thomson CSF	Daimler Benz AG	1	12.02.94
M.0550	Union Carbide Corporation	Enichem S.P.A.	1	13.03.95
M.0580	Daimler Benz	Asea Brown Boveri	2	23.06.95
M.0582	Orkla As	Volvo	2	23.05.95
M.0585	VA Technologie	Trafalgar House	1	07.07.95
M.0603	Crown Cork & Seal Company	Carnaudmetalbox Sa	2	25.07.95
M.0619	Gencor	Lonmin	2	20.12.95
M.0623	Kimberly-Clark	Scott Paper	2	12.09.95
M.0632	Rhône Poulenc Rorer Inc.	Fisons Plc.)	1	21.09.95
M.0685	Siemens	Lagardere	1	08.02.96
M.0689	Singapore Telecom	Belgacom	1	29.02.96
M.0706	Alcatel	Aeg	1	03.09.96
M.0731	Kvaerner A.S.	Trafalgar House Plc	1	15.04.96
M.0737	Ciba-Geigy	Sandoz	2	02.05.96
M.0754	Anglo American Corp.	Lonmin	2	16.12.96
M.0774	Saint Gobain	Hoechst Wacker	2	31.07.96
M.0794	Coca-Cola Enterprises	Cadbury Schweppes	2	13.09.96
M.0798	General Electric	Compunet Computer A.G.	1	19.08.96
M.0818	Cardo	Thyssen	1	02.12.96
M.0833	Coca Cola Company	Carslberg A/S	2	02.05.97

M.0850	Fortis	Abn-Amro Bank	1	06.02.97
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**List of cases. EU merger cases (1990-1999) (forts.)**

M.0856	British Telecom	Mci (Ii)	2	20.01.97
M.0877	Boeing	Mcdonnell Douglas	2	19.03.97
M.0913	Siemens	Elektrowatt	2	28.07.97
M.0938	Guinness	Grand Metropolitan	2	20.06.97
M.0942	Veba	Degusta	2	02.09.97
M.0950	Roche	(Boehringer Mannheim )	2	02.10.97
M.0954	Bain Capital Inc.	Hoechst Ag	1	02.09.97
M.0967	Klm	.	1	22.09.97
M.0970	Thyssen Krupp Stahl	Itw Signode	2	22.12.97
M.0984	Dupont De Nemours & Co.	Imperial Chemical Industries Plc.	1	02.10.97
M.0986	Bayer Group	Du Pont I De Nemours	2	09.10.97
M.0993	Bertelsmann	Taurus Entertainment Canal Plus	2	22.01.98
M.1027	Deutsche Telekom	Bertelsmann	2	29.01.98
M.1042	Eastman Kodak Company	Dainippon Ink & Chamics	1	15.01.98
M.1069	Worldcom	Mci	2	03.03.98
M.1081	Dow Jones	General Electric	1	22.01.98
M.1094	Caterpillar	Lucas Varity	1	23.02.98
M.1142	Commercial Union Plc	General Accident Plc	1	06.05.98
M.1225	Enso Oyj	Stora Kopparbergs Bergslags Ab	2	31.07.98
M.1232	Ingram	Tech Data	1	17.07.98
M.1252	At&T	Tele-Communcations Inc.	1	04.12.98
M.1258	General Electric	Finmeccanica	1	28.08.98
M.1265	Chs Electronics Inc.	Metro Ag	1	21.08.98
M.1332	Thomson-CSF	Lucas Varity Plc	1	21.12.98
M.1363	Du Pont De Nemours & Co.	Hoechst AG	1	05.02.99
M.1383	Exxon Corporation	Mobil Corporation	2	09.06.99
M.1405	Tnt Post Group N.V.	Jet Services Sa	1	15.02.99
M.1439	Telia <sup>2</sup>	Telenor <sup>2</sup>	2	15.06.99
M.1466	Eaton Corporation	Aeroquip Vickers	1	31.03.99
M.1476	Adecco S.A.	Delphi	1	26.03.99
M.1524	Airtours	First Choice	2	03.06.99
M.1532	Bp Amoco Plc.	Atlantic Richfield Company	2	10.06.99

M.1561	Getronics N.V.	Wang Laboratories Inc.	1	15.06.99
M.1578	Sanitec	Konink. Sphinx	2	03.08.99

**List of cases. EU merger cases (1990-1999) (forts.)**

M.1650	ACEA S.P.A.	Telefonica	1	01.12.99
M.1671	Dow Chemical	Union Carbide	2	22.12.99
M.1672	Ab Volvo	Scania Ab	2	25.10.99
M.1673	Veba Ag	Viag Ag	2	04.02.00
M.1687	Adecco SA	Olsten <sup>2</sup>	1	29.10.99
M.1760	Mannesmann AG	Orange Plc	1	20.12.99
M.1797	Bae Systems+ Investor AB	Celsius AB	1	04.02.00
M.1871	Arrow Electronics Inc.	Tekelec	1	13.04.00

<sup>1</sup> On the basis of the information on market shares obtained from the EU Commission's report and about the stock prices of the other merging firms, we calculate a price reaction also for those firms that were not quoted in any stock market.

<sup>2</sup> These are public owned firms. We assume that their lobbying efforts are not through money but rather through political channels.

In the table are reported (almost) all Phase II and a selection of Phase I merger cases analysed by the EU Commission during the period 1990-1999. Some Phase II cases could not be considered because of the lack of information about firms' stock prices.



