

Market reactions to European merger regulation: A reexamination of the protectionism hypothesis

Nihat Aktas*
SKEMA Business School
ECCCS

Eric de Bodt
Univ. Lille Nord de France – SKEMA Business School
ECCCS

Marieke Delanghe
Univ. Lille Nord de France – SKEMA Business School
ECCCS

Richard Roll
UCLA – Anderson School of Management

This draft: November 15, 2011

ABSTRACT

In the 1990s, European merger regulation (EMR) was biased against foreign acquirers, especially if the deal harmed domestic rivals (i.e., protectionism). In 2002, the Court of First Instance overturned three prohibitions by the European Commission (EC) and criticized its economic analysis. These events hastened EMR reform, including amendments introduced in May 2004. With a sample of 474 merger proposals submitted to the EC during 1990–2007, we show that the EC's protectionism from the 1990s did not extend into more recent periods. The change of policy toward foreign acquirers seems rooted in Court judgments of 2002 and subsequent regulatory reforms.

**Corresponding author*

E-mail addresses: nihat.aktas@skema.edu (N. Aktas), eric.debodt@univ-lille2.fr (E. de Bodt), marieke.delanghe@skema.edu (M. Delanghe), rroll@anderson.ucla.edu (R. Roll)

Acknowledgments

The authors thank Jean-Gabriel Cousin, Gaël Imad'Eddine, and Piet Sercu, as well as participants of the Lens University research workshop, the European Center for Corporate Control Studies (www.ecccs.eu) finance seminar, and the 3L seminar (UCL-KUL-Lille). The authors acknowledge financial support from the University of Lille 2 (Finance, Banking, and Accounting Department) and SKEMA Business School.

I. Introduction

The mergers and acquisitions (M&A) market is a major resource allocation channel in modern economies. Netter, Stegemoller, and Wintoki (forthcoming) report that between 1992 and 2009, U.S. acquirers completed more than 128,000 transactions, with an aggregate deal value of \$16,703 billion and a 1998 peak value of \$1,806 billion—or 13% of U.S. stock market capitalization. Similarly impressive figures emerge from European contexts: Between 1992 and 2009, more than 50,000 deals were completed by European acquirers for an aggregate deal value of \$10,715 billion.

The supervision of the M&A market by public authorities thus represents a central concern. In the United States, current regulations are rooted in the 1890 Sherman Antitrust Act, which aimed to promote competition by opposing business combinations that seemed likely to lead to monopolies or cartels. A century later, European merger¹ regulations (Council Regulation No. 4064/1989) pursued similar consumer protection goals by enforcing competition. However, the academic literature, pioneered by Eckbo (1983), found little support for the reasoning behind these regulations, because the regulated takeovers seemingly would have not led to increased monopoly power in the absence of the regulation. So why do government authorities regulate the M&A market? Bittlingmayer and Hazlett (2000) offer several explanations, such as bureaucratic self-interest, political extraction, or private benefits. Aktas, de Bodt, and Roll (2007) focus on a potential private benefit from M&A market regulation, namely, using merger regulation as a tool to shelter domestic firms from international competition (i.e., the protectionism hypothesis). In this study, we expand on their work to test whether the latest shifts in European merger regulations (EMR) have affected European authorities' behavior.

¹ For the sake of brevity, we use “merger” to refer to all transactions in the M&A market, including mergers, acquisitions, acquisitions of majority interest, and acquisitions of assets.

The protectionist tendencies of the European Commission (EC) appeared most prominently in two widely publicized decisions. First, in response to the proposed Boeing/McDonnell Douglas merger in 1997, the EC required Boeing to abandon important exclusive supply contracts unrelated to the merger, which the company had signed with its main U.S. customers. Observers in the United States (including members of the U.S. Congress) claimed the EC was not considering the impact of the merger on consumer welfare but rather was just acting to protect Airbus Industries—Boeing’s European rival (see Roberto (1998); Aktas et al. (2001)). Second, the EC blocked a proposed merger between General Electric and Honeywell in 2001. These two U.S. companies obtained approval to merge from all U.S. regulatory agencies, and the refusal by the EC prompted widespread criticisms in the U.S. business press (see Priest and Romani (2001)).

The EC’s decisions also attracted the attention of the academic community. To investigate the true motives of its decisions, previous research has used stock price reactions surrounding the EC interventions and revealed that protectionism could be an important determinant of EMR. Aktas, de Bodt, and Roll (2004) uncover a troubling trait among European regulators: Investors anticipate far higher costs to the merging parties when the EC intervenes against foreign acquirers as opposed to acquirers from European countries. Such evidence raises doubts about the true intentions of European regulators. In a subsequent study, the same authors provided a more direct test of the protectionism hypothesis. Using a sample of 290 merger proposals submitted to the EC during 1990–2000, Aktas, de Bodt, and Roll (2007) report that the probability of EC intervention against foreign bidders increases when European rivals suffer from the merger announcement. In other words, the more the announcement prompts negative abnormal returns for European rivals, the more negative is the EC’s attitude toward foreign acquirers. These results are particularly striking because negative abnormal returns for rival firms actually are incompatible with increased monopoly

power at the industry level (Betton, Eckbo, and Thorburn (2008)). That is, negative returns for rival firms suggest that the proposed mergers likely would increase competition in the industry.

Other studies devoted to the analysis of merger proposals prior to 2002 also have considered acquirer nationality as a possible determinant of EMR (e.g., Neven and Röller (2002); Bergman, Jakobsson, and Razo (2005), Duso, Gugler, and Szücs (2010); and Duso, Gugler, and Yurtoglu (forthcoming)). However, these studies do not provide clear-cut empirical tests of the protectionism hypothesis. In particular, unlike Aktas, de Bodt, and Roll (2007), these studies do not account simultaneously for the wealth effects for European rivals and acquirer nationality as a combined determinant of EC intervention.²

Then 2002 marked an important milestone: The EC faced an important challenge when the European Court of First Instance overruled three EC decisions,³ arguing that the EC had misevaluated the competitive intensity in relevant industries. Following these remarkable decisions, the EC reformed the EMR in early 2004 (Council Regulation 139/2004). Although the official origin of the reform was a European Union Green Paper⁴ published in 2001, the European Court of First Instance's decisions certainly contributed to reform adoption. In particular, the 2004 reform aimed to improve economic analyses of submitted cases (Lyons (2009)). Did the Court decisions and subsequent reforms to the EMR actually change the EC's attitude toward foreign acquirers though?

To answer this question, we rely on a sample of merger proposals submitted to the EC during 1990–2007. We start with the sample of 290 observations used by Aktas, de Bodt, and Roll (2007), which covers the period 1990–2000. Then we augment this sample by hand

² The key aspect of the Aktas, de Bodt, and Roll (2007) method is the use of an interaction variable between acquirer nationality and abnormal returns to European rivals as a determinant of the probability of EC intervention.

³ The three EC decisions prohibited the following merger proposals: Airtours/First Choice, Schneider/Legrand, and Tetra Laval/Sidel.

⁴ See the European Union's "Green Paper on the Review of Council Regulation N_ 4064/89" (November 2001) at http://www.europa.eu.int/comm/competition/-mergers/review/green_paper/en.pdf.

collecting all cases submitted to the EC between 2001 and 2007. During this latter period, 2,145 merger proposals were submitted. Our analyses are based on event studies, so to be included in the sample, the firms (targets, acquirers, and rivals) must be listed on a stock exchange. We replicate the approach developed by Aktas, de Bodt, and Roll (2007) and therefore collect the needed information from the Thomson One Banker, Datastream, and CRSP databases. To form rival portfolios, we use the Thomson One Banker Comparables database. The multivariate analyses refer to a final sample that encompasses 474 merger proposals, of which 290 transactions are from 1990–2000, and 184 are from 2001–2007.

With this innovative, unique data set, we derive several main results:

1. The sample merger proposals, on average, create value for shareholders. Consistent with prior literature, target shareholders mainly capture this value creation effect, and acquirers break even on average. The average wealth effect for industry rivals at the announcement of the merger proposal is negative and marginally significant, a result inconsistent with the market power hypothesis, which predicts a positive announcement effect for industry rivals. Taken together, the evidence from investor reactions indicates that our sample deals are value creating and pro-competitive, and therefore beneficial for consumers.
2. The wealth effect of the announcement at the deal level (acquirers plus targets) increases with the severity of the EC's scrutiny. Challenged merger proposals are more value creating at the initial announcement than deals approved outright. This result would be consistent with regulators' stated anti-monopoly objective, if the source of the value creation were an increase in industry monopoly rents. However, the value creation source also could relate to synergy or efficiency gains.
3. The multivariate analysis reveals that during 2001–2007, the joint effect of acquirer nationality and European rival abnormal returns was no longer a significant determinant of the probability of EC intervention. That is, in the latter study period, EC regulators

were less biased against foreign acquirers, and the influence of acquirer nationality on the probability of EC intervention did not relate to stock price reactions for European rivals. This result contrasts with Aktas, de Bodt, and Roll's (2007) findings for the 1990s. Our results further suggest that the EC has changed its behavior toward foreign acquirers over time. The lack of protectionism in the more recent period and the statistical significance of some important variables, such as deal size, deal value creation, and acquirer size, lead us to conclude that the economic soundness of the EC decisions has improved over time.

4. Finally, we investigate whether it is possible to relate this change in EC behavior toward foreign acquirers to the decisions of the European Court of First Instance in 2002 and the subsequent reform in 2004. The evidence suggests that the change in EC behaviors began to be observed around 2002, suggesting that the notable decisions of the Court were important triggers for a new European competition policy.

This article depends on and complements previous research that has used stock price data to infer actual rather than intended motives of merger regulations. Schwert (1981) was among the first authors to suggest that it would be possible to assess the effects of government regulations from the behavior of stock prices. Eckbo (1983) explicitly tested whether U.S. regulatory authorities (e.g., Federal Trade Commission, Department of Justice) intervene to regulate business combinations that likely reinforce monopoly rents within an industry (i.e., market power hypothesis). However, Eckbo failed to support the market power hypothesis, and subsequent contributions delivered mostly the same message (e.g., Eckbo (1985); Eckbo and Wier (1985); Slovin, Sushka, and Hudson (1991); Eckbo (1992); Fee and Thomas (2004); Shahrur (2005)), with the exception of Bernile and Lyandres (2010), who controlled for expected merger synergies when testing for this hypothesis.

Our work also relates to literature focused on the political economy and the effectiveness of the EMR. Bergman, Jakobsson, and Razo (2005) analyzed the determinants of EC

interventions using a sample of 96 merger proposals prior to 2002 and identified the market shares of the parties, increased market shares following the merger, and the existence of entry barriers as the most significant determinants. Duso, Neven, and Röller (2007) used a sample of 167 merger proposals during 1990–2000 to assess the accuracy of the EC decisions. Their results indicate that institutional and political environments matter and that EC experts do not focus solely on protecting consumers when preparing their decisions. Using the same sample of merger proposals, Duso, Gugler, and Yurtoglu (forthcoming) have assessed the effectiveness of EC decisions by analyzing the related market reactions. In this case, the authors report that only prohibitions reverse the rents anticipated by investors at the initial announcement of the merger proposal.

Finally, the paper that is probably most closely related to our research is Duso, Gugler, and Szücs's (2010) analysis of the economic impact of the 2004 EMR reform. Using a sample of 326 transactions submitted to the EC between 1990 and 2007, the authors compared the determinants of EC interventions prior to and after the 2004 reform and indicated that the predictability of the regulation diminished after the introduction of the reform, especially for outright authorizations. The authors report also results on the deterrence effect of the EMR, which in the period after the reform seemed related more to remedies of past decisions imposed by the EC than to prohibitions. In comparison with Duso, Gugler, and Szücs's (2010) article, our analysis focuses more specifically on the protectionism hypothesis.

Accordingly, we organize this article as follows: Section II briefly presents the EMR procedures, the criticisms of the EC, and the main features of the 2004 reform. In Section III we describe the sample and data. After presenting the results in Section IV, we offer some additional robustness checks and outcomes in Section V, and then conclude in Section VI.

II. The European merger regulation

The European merger regulation (EMR) targets M&A activities of large firms with operating activities in Europe. Between September 1990 and June 2011, the EC received more than 4,700 merger proposals.⁵ Around 90% of these proposals were allowed without any conditions or charges imposed; the EC regulatory actions directly affected only 7.5% of merger proposals. Specifically, the EC imposed remedies on 7% of the proposed merger proposals and prohibited fewer than 0.5% of the cases. Although these prohibited cases attracted significant media coverage, only 21 business combinations actually have been prohibited in 20 years. However, indirect effects of the regulation might be much more important, such that its very existence could deter some of the most anticompetitive mergers (see Eckbo (1992); Duso, Gugler, and Szücs (2010)). With this section, we detail the legal context of the EMR prior to 2004, and then present the most important features of the 2004 reform.

II.A. Legal context prior to 2004

The EMR rules are governed by a set of regulations, the first of which came into effect in 1990 (Council Regulation 4064/89). These rules complement general antitrust rules set out in Articles 101 (cartels) and 102 (abuse of dominance) in the Treaty on the Functioning of the European Union. They allow the EC to control business combinations (mergers, acquisitions, and joint ventures) of significant size that involve firms operating in Europe. If the parties meet certain worldwide and European gross sales thresholds, they must notify the EC of the deal (Article 1.2 of Council Regulation 134/2004). According to the EC, the mission of the EMR “is to enforce the competition rules of the Community Treaties, in order to ensure that competition in the EU market is not distorted and that markets operate as efficiently as

⁵ See <http://ec.europa.eu/competition/mergers/statistics.pdf>.

possible, thereby contributing to the welfare of consumers and to the competitiveness of the European economy.”⁶

The procedure followed by the EC since 1990 thus is precisely defined. First, following a notification of a merger proposal, the EC has 25 working days to complete its preliminary analysis, called Phase I. The decision at this stage mainly relies on information contained in the notification. The EC may issue three types of decisions: accept the deal outright, accept the deal subject to specific remedies imposed on the parties (e.g., divestitures of certain assets), or send any deal that raises serious competition issue through an in-depth investigation, called Phase II. The EC then has 90 days to announce a Phase II decision, whether authorization, authorization subject to conditions, or prohibition of the proposed merger. Furthermore, all information about the notifications, together with the corresponding decisions, is published and publicly downloadable from the EC’s website.⁷

Following the EC rulings, the parties can appeal to the Court of First Instance or the European Court of Justice. Such actions are relatively rare; the appeal procedures are long, and delays often harm the involved companies. As of 2001 though, an “expedited procedure” introduced for merger appeals in the Court of First Instance requires decisions within a 12-month period. However, this procedure cannot be applied in all cases (see Lyons (2009)).⁸

II.B. 2004 reforms of the European merger regulation

Two main criticisms arose from professionals and academics about the European procedures in place before 2002. First, a unique team was in charge of each case, from the start of Phase I to the end of Phase II. In a way, this team therefore played investigator, prosecutor, and jury. For example, the team in charge of a given case likely would spend the time allowed for the Phase II procedure to justify its Phase I decision, rather than starting with unbiased, new

⁶ See http://ec.europa.eu/dgs/competition/index_en.htm.

⁷ See <http://ec.europa.eu/competition/mergers/cases/>.

⁸ For example, after the EC’s decision, the Court of First Instance took almost three years to make a decision in the *Airtours/First Choice* case.

investigations (Lyons (2009)). The business press highlighted this potential bias in the Honeywell–General Electric case, noting the contrast with the U.S. authorities, who must obtain court approval to block a merger (*Financial Times* (2001)).

Second, a dominance test, which specifies the conditions under which the EC had to intervene, also was subject to questions. Article 2(3) of Council Regulation No 4064/89 specifies: “A concentration which creates or strengthens a dominant position as a result of which effective competition would be significantly impeded in the common market or in a substantial part of it shall be declared incompatible with the common market.” This dominance test encouraged a formalistic approach that granted too much weight to market shares (Lyons (2009)). Unlike the more pragmatic U.S. procedure, the European dominance test did not allow for efficiency arguments.⁹ Thus the international business press repeatedly accused the EC of protectionist behaviors in major cases, including Boeing/McDonnell Douglas and General Electric/Honeywell.

Then the Court of First Instance annulled three prohibition decisions in 2002: Airtours/First Choice, Schneider/Legrand, and Tetra Laval/Sidel. The Court stressed the weaknesses of the economic analysis performed by the EC experts, arguing that the potential anticompetitive effects in those cases were not clearly motivated. According to Lyons (2009), these decisions hastened the reform of the EMR, which had begun in 1999. In particular, the 1989 EMR was amended in 2004 by Council Regulation No. 139/2004. A central goal of the 2004 reform was to achieve better, more consistent economic analyses, through several key features:

- Devil's advocate panels introduced to provide an internal critique of arguments put forward by the case teams.

⁹ Another criticism noted that very few economists with doctoral degrees worked on the case teams during the first half of the 1990s (Lyons (2009)).

- An extended EC timetable, such that if the merging parties want to propose remedies to make the combination compatible with competitive goals, the Phase II investigations can last 105 working days instead of 90.
- Creation of a Chief Competition Economist position, together with a team of about 10 economists, assigned to support case teams with more sophisticated economic analyses.
- Modified syntax of the dominance test and the inclusion of an efficiency defense clause, such that the analysis of the merger proposal is much closer to the U.S. method.

III. Data and methods

III.A. Sample description

We start with the sample used by Aktas, de Bodt, and Roll (2007), which includes all transactions submitted to the EC from 1990 to 2000. From the EC website,¹⁰ we augment this database with merger notifications from 2001–2007, when the EC examined 2,145 proposed deals. Of these proposals, the EC authorized 1,924 (89.7%) outright, cleared 86 (4%) subject to remedies, and sent 81 (3.8%) to the in-depth investigation phase. The remaining 54 proposed deals either were withdrawn by the submitting parties before the EC decision or transferred by the EC to national authorities. Furthermore, of the 81 deals challenged by the EC, 27 were approved, 36 approved subject to conditions, 5 prohibited, and 13 withdrawn before the EC’s final decision; 1 deal (Tetra Laval/Sidel) also was authorized subject to remedies after the Court of First Instance annulled the EC’s initial decision to prohibit it.

For our analysis, we need information about the deal and firm characteristics, which we collected from the Securities Data Company Mergers and Acquisitions database (SDC). We identified 1,603 of the 2,145 cases examined by the EC, or 74.7% of the total sample, in SDC and included all the major deals submitted to the EC during the 2001–2007 period.

¹⁰ <http://ec.europa.eu/competition/mergers/cases/>.

To compute wealth effects (i.e., abnormal returns) around the initial announcement of the merger proposal, we also require market data for both the acquirer and the target, and thus, the 2001–2007 period sample reduces to 192 deals. We use the CRSP and Datastream databases to collect market data. The availability of some control variables, such as deal value, further restricts the sample to 184 observations in our multivariate analyses. However, because some univariate analyses do not require both the acquirer and the target to be public, the sizes of the samples differ across tables; we report them in each case.

In particular, Table 1 provides descriptive statistics about the sample used in the multivariate analyses. The first column breaks down the aggregate sample by decision type in Panel A and by acquirer nationality in Panel B. The second column corresponds to the 290 merger proposals submitted to the EC during 1990–2000, as analyzed in depth by Aktas, de Bodt, and Roll (2007). The third column presents merger proposals between 2001 and 2007. The proportion of deals authorized outright is approximately 80%, the proportion approved after remedies represents 9.7% of the total sample, and 9.3% of the merger proposals lead to in-depth investigations. Across the two subperiods, the proportion of approval after remedies increased from 8.6% to 11.4%, whereas the proportion of in-depth investigations decreased from 10.3% to 7.6%. Regarding the home country of the acquirers, the proportion of deals with foreign acquirers increased substantially over time, from 35.9% for the first subperiod to 47.8% for the latter.

III.B. Industry rivals

To test the protectionism hypothesis, Aktas, de Bodt, and Roll (2007) identified the European industry rivals for each acquirer included in the sample. We rely mainly on the Thomson One Banker Comparables database (TOB) to identify these industry rivals, using the following

criteria: The rival belongs to one of the first 15 countries that joined the European Union,¹¹ has the same ICB Subsector code¹² as the acquirer, and achieves sales relatively comparable to those of the acquirer.¹³ When necessary, we complement the TOB database information with data from Hoover's Online database and decision reports provided by the EC.

For the 674 merger proposals with listed acquirers, we identified European rivals for 633 cases. On average, we found 9 European rivals per merger proposal between 2001 and 2007 (minimum = 1, maximum = 16).

III.C. Abnormal return estimation

Following Fama et al. (1969), we use the event study method to isolate the impact of a particular event on market valuations. In a first step, we construct a model for normal returns and use the standard market model to estimate them:

$$R_{jt} = \alpha_j + \beta_j R_{Mt} + \varepsilon_{jt}, \quad (1)$$

where R_{jt} is the observed return for firm j on day t ; R_{Mt} is the return of a concurrent local country stock market index on day t ; α_j and β_j are, respectively, the estimated ordinary least squares (OLS) regression intercept and slope; and ε_{jt} is the regression residual.¹⁴ We then estimate the market model parameters using 200 daily observations during a period that ends 30 days before the initial announcement of the merger proposal. To compute the corresponding returns, the prices are kept in local currency.¹⁵

The abnormal return (AR) for day t corresponds to the difference between the observed return on day t and that estimated using the market model:

$$AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{Mt}). \quad (2)$$

¹¹ Namely, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Republic of Ireland, Italy, Luxembourg, The Netherlands, Portugal, Spain, Sweden, and the United Kingdom

¹² ICB stands for industry classification benchmark, which is the industry classification used by NYSE Euronext.

¹³ We rely on the TOB database identification criteria: Rivals must belong to the set of 15 closest firms in terms of total sales.

¹⁴ Brown and Warner (1985) confirm the robustness of the short-term event study method to the choice of the return generating process.

¹⁵ Aktas, de Bodt, and Roll (2004) and Campbell, Cowan, and Salotti (2010) demonstrate the robustness of the event study method to the use of local versus U.S. dollar-denominated prices and local versus world indices.

To measure the wealth effect induced by a given merger proposal, we compute the cumulative abnormal return (CAR) by summing the daily AR over an 11-day interval, centered around the announcement day. To analyze the announcement effects at the deal level, we form a value-weighted portfolio of the merging parties, using the market value of the firms on the last day of the estimation window as the weight. With the same portfolio approach, we assess the impact of the merger proposal on the industry rival firms.

Finally, we assess the significance of the CAR, which requires tackling several econometric problems such as non-normality and event-induced variance. We follow the percentile-t bootstrap procedure advocated by Aktas, de Bodt, and Roll (2004), which not only is robust to non-normal and autocorrelated abnormal returns but also controls for event-induced variance.¹⁶

IV. Results

IV.A. Preliminary analysis

Table 2 summarizes the announcement effects associated with mergers subject to EC regulatory hurdles, including the average CAR for acquirers, targets, deals (acquirers plus targets, weighted by their respective market values), and industry rivals around the initial announcement of the merger proposal. We compare mergers announced during 2001–2007 (column 2) with mergers announced during 1990–2000 (Aktas, de Bodt, and Roll (2007), column 1). The average acquirer CAR is not significant at conventional levels in either subperiod, so acquirers break even on average in our sample. This result is largely consistent with prior literature focusing on acquisitions of listed targets (e.g., Jensen and Ruback (1983); Andrade, Mitchell, and Stafford (2001); Martynova and Renneboog (2008)).

¹⁶ We computed the bootstrapped t-statistic using Boehmer, Musumeci, and Poulsen's (1991) approach, which is robust to event-induced variance.

The average target CAR is 15.57% during 2001–2007 (column 2)—substantially higher than the average target CAR of 9.05% during the 1990s, as reported by Aktas, de Bodt, and Roll (2007). This difference between the two subperiods might be driven by a change in the proportion of deals with foreign acquirers, which has increased substantially over time (from 35.9% during 1990–2000 to 47.8% during 2001–2007; see Table 1).¹⁷ The average target CAR in the recent period also is more in line with prior literature; for example, Andrade, Mitchell, and Stafford (2001) find an average CAR of 15.9% for a sample of U.S. targets during 1990–1998; Danbolt (2004) reports an average CAR of 19% for U.K. targets during 1966–1991; and Goergen and Renneboog (2004) document an average target CAR of 12.96% for a sample of intra-European takeovers during 1990–2001.

For combined firms (acquirer plus target), Table 2 indicates significant wealth creation effects for shareholders around the announcement day. The average CAR at the deal level is 2.59% for merger proposals during 2001–2007, a result that is substantially higher than the 0.88% return reported by Aktas, de Bodt, and Roll (2007). The deal CARs in Table 2 also are largely consistent with prior findings (e.g., 3.51% in Mulherin and Boone (2000); 1.4% in Andrade, Gregor, and Stafford (2001)).

For industry rivals, an announcement of a merger proposal is a bad news on average, but the corresponding CARs are only marginally significant. The effect on industry rivals appears statistically less significant during 2001–2007, with a *p*-value equal to 0.15. This result contrasts with previous U.S. studies that document significantly positive return for rivals (e.g., Eckbo (1985); Song and Walkling (2000); Fee and Thomas (2004)). However, Duso, Gugler, and Yurtoglu (forthcoming), using a sample of EC decisions during 1990–2002, report results very close to ours. (The authors document a statistically insignificant CAR of –0.3%.)

¹⁷ See Danbolt (2004) for an in-depth analysis of the cross-border effect on target abnormal returns.

The analysis of merging parties' and rivals' abnormal returns thus suggests that our sample deals are synergistic combinations, and most of the synergy gains accrue to target shareholders. These results are clearly incompatible with increased monopoly power at the industry level, which requires positive rival returns to be validated (see Eckbo (1983)).

Next, Table 3 contains the initial announcement effects, classified by ultimate regulatory outcome, for both deals (acquirer plus target) and European industry rivals. Our test of the protectionism hypothesis is based on the interaction between the nationality of the acquirer and the European rival wealth effect, so Table 3 also breaks down the average rival CAR by acquirer nationality (i.e., from the European Union or not).

The deal CAR by ultimate EC decision suggests that expected value creation correlates positively with the intensity of the regulatory intervention. Deals approved outright by the EC during 2001–2007 have lower abnormal returns around the initial announcement date (2.38%) than deals that prompt in-depth investigations (4.43%). This finding largely corroborates the results obtained for EC decisions during the 1990s (column 1), though expected value creation is substantially greater in the more recent period. The larger CAR for deals subjected to in-depth investigations is compatible with the regulator's motive to combat monopoly power if value creation stems from an increase in monopoly rents.

A positive deal CAR also is compatible with a synergy-based explanation though. To disentangle these alternative hypotheses (e.g., synergy versus market power), Eckbo (1983) suggests including industry rivals in the analysis: Synergy-driven mergers should be bad news for rivals, but anticompetitive mergers likely benefit industry rivals (i.e., they enjoy the reduction in competition). For deals submitted during 2001–2007, European industry rivals earned negative abnormal returns on average (see Table 2), but this result is significant only for industry rivals of deals approved outright (CAR = -0.36% ; p -value = 0.08). The initial positive deal CAR and negative rival CAR together suggest that merger proposals approved

outright tend to be pro-competitive (or synergy-driven) transaction. In comparison with deals from 1990–2000, the most striking difference pertains to the in-depth investigation, for which industry rival CAR is no longer significant.

With Table 3, we also can analyze European rival CAR according to the ultimate regulatory outcome while controlling for the acquirer’s home country. Similar to the deals during 1990–2000, for all the three decision types, the average rival CAR of deals submitted during 2001–2007 does not seem to depend on acquirer nationality.

The univariate results summarized in Table 3 may be misleading though, because potential latent factors might affect the observed correlations. We therefore adopt a multivariate analysis in the next section. Another significant issue affecting the interpretation of univariate results is that CAR reflects investor anticipations, which incorporate the forthcoming regulatory challenge (e.g., Eckbo, Maksimovic, and Williams (1990)). Announcement date abnormal returns reflect the product of the interaction of expected wealth effects with deal completion probability, both of which may be affected by regulatory challenges. Moreover, as emphasized by Aktas, de Bodt, and Roll (2004), regulators likely gauge market price movements in deciding whether to act, which reinforces the endogeneity of the relation between investor anticipations and regulator decisions. This endogenous relation between announcement date CAR and regulatory intervention must therefore be controlled for.

IV.B. Reexamination of the protectionism hypothesis

In this section we revisit the protectionism hypothesis test introduced by Aktas, de Bodt, and Roll (2007). Since the important changes to the EMR, initiated in 2002 and implemented in 2004, the protectionist tendencies of the EC during the 1990s may have shifted. As in the reference work, we model the probability of EC intervention and test whether acquirer

nationality influences the regulatory decision, especially when European industry rivals are likely to suffer from the merger.

The test relies on a probit regression with bootstrapped statistical tests. The considered model has the following form:

$$\Pr(EC\ Intervention) = \Phi(X'\beta), \quad (3)$$

where *EC Intervention* is the dependent variable, which takes the value of 1 in case of approval subject to remedies or in-depth investigation, and 0 in case of outright authorization. X is a vector of explanatory variables (including a constant); β is a vector of coefficients; and Φ is the normal cumulative density function.

To test the protectionism hypothesis, we consider the following variables of interest:

- *Non-EU acquirer*, a dummy variable that identifies foreign acquirers (i.e., firms not domiciled in one of the European Union countries). With this variable, we can determine whether European regulators are influenced by the acquirer's country of origin. There is however no reason why an acquirer's nationality should influence the regulator's inclination to intervene, provided that the regulator is motivated purely by a desire to enhance competition.
- *Rival CAR*, which measures the impact of a merger on European industry rivals. It corresponds to the 11-day market-adjusted abnormal returns of the rival portfolio. Following Eckbo (1983), because one of the aims of the regulators is to combat monopoly power, this variable is expected to have a positive effect on intervention probability.
- *Non-EU acquirer* \times *rival CAR*, the product of the two preceding variables and the key variable for testing the protectionism hypothesis. Under the protectionism hypothesis, foreign acquirers are subject to more regulatory interventions than domestic ones when local rivals may be harmed. The interaction variable is therefore expected to have a negative impact on intervention probability.

The regression also includes the same set of control variables as in Aktas, de Bodt, and de Bodt (2007), to guarantee the comparability of the results: *deal CAR*, *target size*, *acquirer size*, *deal value*, and an indicator of sector proximity (i.e., correlation coefficient of target and acquirer returns), as described in the Appendix.

Table 4 presents the results. Column 1 replicates Aktas, de Bodt, and Roll's (2007) main results for comparison purposes, and column 2 displays the estimation of the standard probit with the sample of merger proposals from 2001–2007. Consistent with prior findings (e.g., Neven and Röller (2002); Aktas, de Bodt, and Roll (2004; 2007); Bergman, Jakobsson, and Razo (2005), Duso, Gugler, and Szücs (2010); Duso, Gugler, and Yurtoglu (forthcoming)), foreign acquirers are not subject to more severe scrutiny from the EC than domestic ones during either period (coefficient of *Non-EU acquirer* is not significant in columns 1 and 2 of Table 4). In comparison with results for the 1990–2000 period (column 1), the sign of the key variable of interest, *Non-EU acquirer* \times *rival CAR*, is reversed, and the coefficient is not significant in column 2. These two results indicate that during 2001–2007, EC regulators were not biased against foreign acquirers, and the influence of acquirer nationality on the probability of EC intervention no longer depended on the stock price reaction of European rivals. Surprisingly, *Rival CAR* loses also its significance, which suggests that EC regulators stopped considering the wealth impact of a merger proposal on European rival firms when deciding whether to act.

For the other explanatory variables, the comparison of columns 1 and 2 indicates that only *deal value* keeps its sign and significance across both periods (though the result is marginally significant in column 2, with a *p*-value of 0.11). Larger deals continue to attract closer scrutiny from regulators. Two other interesting explanatory variables, *deal CAR* and *acquirer size*, were not significant in column 1 but become significant in column 2. *Deal CAR* has a positive and significant coefficient (*p*-value = 0.04) in column 2, which suggests two

possible interpretations. First, the regulators use market reactions to decide whether to act, or second, the potential of monopoly rents is determined independently by the regulators, but investors' assessments remain consistent with regulators' estimations. *Acquirer size* also positively affects the probability of intervention (p -value = 0.00), suggesting that takeovers initiated by large firms raise more anticompetitive issues. Consistent with Duso, Gugler, and Szücs (2010), the comparison of the pseudo R-square between columns 1 and 2 of Table 4 indicates that the predictability of EC regulations has diminished over time.

The comparison of the results across the two periods also indicates that the EC changed its behavior over time. The lack of protectionism propensity in the more recent period and the statistical significance of variables such as *deal CAR*, *acquirer size*, and *deal value* suggest that the soundness of the EC decisions, from an economic point of view, has increased.

We thus try to determine when the EC started to change its behavior by considering three additional specifications in Table 4 (columns 3–5), using the merged sample of EC decisions during 1990–2007. In column 3 of Table 4, which merges the two samples, the variable of interest, *Non-EU acquirer × rival CAR*, is negative and statically significant with a p -value of 0.07, consistent with the protectionism hypothesis. In light of the results in columns 1 and 2, this result appears driven by observations related to the first period. The probit estimation in column 4 of Table 4 also uses the merged sample, but it includes an additional interaction variable to assess whether the effect of *Non-EU acquirer × rival CAR* on the probability of intervention differs after the reform year. Protectionist tendencies of the EC appear only for the period 1990–2003, as captured by the statistically negative coefficient of the *Non-EU acquirer × rival CAR* variable. After 2004, relative to its impact during the previous period, the joint variable exerted a significantly positive effect on the probability of intervention, as predicted by the market power hypothesis. Moreover, the coefficient of the new interaction variable (9.28) is more than twice the absolute value of the coefficient of the initial interaction

variable (-3.78) and highly significant. The specification in column 4 also includes a dummy variable for merger proposals announced after 2004; the coefficient of this new variable is negative and statistically significant with a p -value of 0.03. Therefore, the EC interventions became less stringent after the reform. An alternative and plausible explanation is that less anticompetitive mergers were submitted to the EC after the reform, due to the deterrence effect of the European merger control (see Duso, Gugler, and Szücs (2010)). It is important to note that 2004 also corresponds to the last year in which Mario Monti served as commissioner in charge of competition policy. Monti was repeatedly identified as a tough commissioner by the financial press, so the change in EC behavior may relate as much to the change of commissioner as to the adoption of the new regulation.

Finally, column 5 of Table 4 helps us investigate whether the change in behaviors of EC regulators began in 2002, following the annulment of three EC decisions by the Court of First Instance. It clearly did. Therefore, the change of EC behaviors cannot be attributed solely to a change of commissioner but reflects criticisms of the EC at the beginning of the 2000s, fuelled by the Court of First Instance decisions, which led to reforms in 2004.

V. Additional results and robustness check

V.A. Assessing the causes of the change in EC's behavior

The preceding results indicate that the policy change toward foreign acquirers was already beginning by around 2002, even though reforms were adopted only in 2004. Therefore, the judgments of the Court of First Instance to overrule three EC decisions in 2002 appear to have triggered policy changes, even as the EMR reform was under way. We explore this possibility by performing additional event study analyses around the Court of First Instance decisions. If these decisions hastened EMR reform, the announcement of the Court judgments should have been considered good news for non-European potential acquirers. To test this intuition, we

need a sample of such potential acquirers, and because acquirers engage in repetitive acquisitions (Fuller, Netter, and Stegemoller (2002)), we use the sample of firms with available market data that undertook an acquisition in 1990–2001. We assume that these firms are likely acquirers in the future and study market reactions for these firms around the announcement dates of the Court of First Instance judgments.

The results in Table 5 are organized by the three EC decisions reversed by the Court in 2002, that is, Airtours/First Choice, Schneider/Legrand, and Tetra Laval/Sidel. The judgment in the Airtours/First Choice case, announced on June 6, 2002, is associated with significantly negative abnormal returns for the sample of potential acquirers, driven by firms domiciled outside the European Union (non-EU acquirers). This result contradicts our expectations, and we imagine at least four likely explanations. First, this first judgment might have increased legal uncertainty in Europe, a harmful development for firms active in the M&A market. Second, confounding political events also marked the U.S. stock market in that period, including the passage of the Sarbanes-Oxley Act (SOX) in July 2002, a move anticipated in June 2002 (see Zhang (2007)). This event had significant impacts on the U.S. stock market, unrelated to the announcements of the Court of First Instance. Because 99 of the 142 non-EU bidders are U.S. firms, movements in the U.S. market likely would affect our results. We therefore computed the CAR for U.S. firms and non-EU/non-U.S. firms in Panel A of Table 5 and found that the negative effect observed for non-EU firms was driven mainly by U.S. firms in the sample. Their average CAR was -2.16% and highly significant (p -value = 0.01). In contrast, the impact was not statistically significant for other foreign firms in the sample. Third, the Airtours/First Choice prohibited merger involved two European firms, so the decision might have demonstrated the EC's willingness to apply the same criteria to all mergers. Following the Court of First Instance's decision to annul the prohibition, investors might have interpreted these actions as just another tactic to favor domestic firms in the

European M&A market. Fourth, the use of past acquirers (from 1990–2001) may be too noisy an indicator to identify future acquirers.

Regarding the Schneider/Legrand judgment in Panel B of Table 5, the announcement of the decision on October 22, 2002, was associated with a negative, significant CAR for EU acquirers and a marginally significant, positive impact for non-EU acquirers. The difference in means between EU and non-EU acquirers CAR also was statistically significant, consistent with our initial intuition that investors would anticipate the reduction in bias against foreign acquirers in the EC's merger policy.

No CAR is significant in Panel C, following the October 25, 2002, announcement of the court's judgment in the Tetra Laval/Sidel. The announcement dates of the latter two judgments were very close, so the third judgment likely had been anticipated already by market participants.

V.B. Endogeneity between investor reactions and regulatory interventions

To provide consistent results, the explanatory variable of interest in econometric analyses should be exogenous. In our model, market reactions to the deal announcement (i.e., abnormal returns) are likely endogenous to the probability of EC intervention. With the announcement of a merger proposal, investors anticipate potential value creation (or destruction) for the involved companies and their rivals. They also attempt to figure out whether regulatory actions will affect the merger. The EC regulators consider most probably the value creation around the deal announcement to assess the potential presence of monopoly rents. Therefore, the endogenous relationship between market reactions and regulatory decisions might affect the results in Table 4.

To test the robustness of our results, we adopted a classical, two-step instrumental variable procedure (Greene (2008)). In the first step, we regressed the endogenous variable on

a set of genuine exogenous variables. Then, we used the fitted ordinary least square (OLS) values as instruments in the second-stage probit model.

We initially tried to build instruments for both *deal CAR* and *rival CAR* using the same first-step model as in Aktas, de Bodt, and Roll (2007). However, the explanatory power of the first-stage regression for *rival CAR* was particularly weak (i.e., no regression coefficients significantly different from 0), especially in the recent period.¹⁸ Because the *deal CAR* and *rival CAR* instruments featured several common variables, we also face a serious collinearity issue when we include both in the second-step specification. Therefore, we only report the results for instrumenting the *deal CAR* variable, using the same model as in Aktas, de Bodt, and Roll (2007).

Table 6 presents the first-stage OLS regression. The dependent variable is the 11-day deal CAR, and the independent variables are described in Appendix. The explanatory power of the model is better for the recent period, with an R-square of 22% (see column 2) compared with an R-square of only 4% for the 1990–2000 period. It is also worth mentioning that the Fisher test rejects the null hypothesis that all coefficients are 0.

In the second step, we reestimated the specifications in Table 4, using the instrumental variable obtained in the first-stage OLS, and report these results in Table 7. The key variable of interest for the test of the protectionism hypothesis, *Non-EU acquirer* \times *rival CAR*, as well as its product with year (2004 or 2002) dummies, revealed the same sign and significance level. That is, the results in Table 4 receive support from the two-stage procedure. Of the control variables, *deal value* and *rival CAR* also retain their sign and significance in the two-step approach.

¹⁸ The overall significance of the OLS regression for *rival CAR*, according to the Fisher statistic, is 0.83 for 1990–2000 and 0.36 for 2001–2007, both statistically insignificant. The adjusted R-square is even negative in the 2001–2007 regression.

VI. Conclusion

This article revisits the protectionism hypothesis related to the European merger regulation (EMR). Following the criticisms of the EC near the end of the 1990s regarding the soundness of its economic analysis, the EC initiated a reform process that led to significant modifications of the regulation in 2004. Using the approach introduced by Aktas, de Bodt, and Roll (2007), we test whether evidence of protectionism in the 1990s has persisted to more recent periods.

Our event study reveals that initial announcement effects are positive at the deal level and negative for industry rivals. That is, mergers submitted to the EC on average are pro-competitive. This evidence is incompatible with the market power hypothesis. Our results also show that the expected value creation anticipated with the initial announcement depends on the EC's subsequent decision. Specifically, average CAR correlates positively with the depth of the EC's investigations.

Furthermore, we find that the protectionism exhibited by the EC in the 1990s is not observable anymore. In particular, the intensity of EC scrutiny does not depend on acquirer nationality or the impact of the initial announcement on European rivals. The three 2002 judgments by the Court of First Instance that overturned important EC decisions might have triggered the EMR reform process, though we find little support for this intuition.

In conclusion, another important channel for implementing protectionist policies in the European M&A market moves through the actions of European member states (see Dinç and Erel (2011)). The disappearance of protectionist behavior at the EC level during 2001–2007 could reflect a transfer of such efforts and attitudes to member states. Therefore, the study of the interplay between actions by member states and decisions by the EC in the context of the M&A market offers an interesting avenue for further research.

Appendix: Variable definitions

Variable	Description
Deal CAR	The 11-day market-adjusted abnormal returns at the announcement date for the deal. For each deal, we form a value-weighted portfolio of the acquirer and target abnormal returns, using the market value of the firms on the last day of the estimation period as the weight.
Target size	The market value of the target, evaluated at the end of the estimation period, in millions of dollars.
Acquirer size	The market value of the acquirer, evaluated at the end of the estimation period, in millions of dollars.
Acquirer/target correlation	The correlation coefficient of acquirer and target returns during the estimation period (indicator of sector proximity).
Deal value	The value of the deal in millions of dollars.
Non-EU acquirer	A dummy variable equal to 1.0 if the home country of the acquirer is not one of the European Union countries.
Rival CAR	The 11-day market-adjusted abnormal returns at the announcement date for the portfolio of European rivals. For each deal, we form a value-weighted portfolio of industry rivals abnormal returns, using the market value of the firms on the last day of the estimation period as the weight.
Non-EU acquirer \times rival CAR	The product of the two preceding variables.
After 2004	A dummy variable equal to 1.0 if the notification date of a given merger proposal is after May 1, 2004.
After 2004 \times Non-EU acquirer \times rival CAR	The product of the two preceding variables.
After 2002	A dummy variable equal to 1.0 if the notification year of a given merger proposal is after 2002.
After 2002 \times Non-EU acquirer \times rival CAR	The product of the preceding variable and the Non-EU acquirer \times rival CAR variable.
Large EU country acquirer	A dummy variable equal to 1.0 if the home country of the acquirer is one of the large European Community countries (Germany, France, Spain, Italy, or UK)
Target to acquirer relative size	The target-to-acquirer size ratio, measured by the market value at the end of the estimation period
Tender offer	A dummy variable equal to 1.0 if the deal is a public offering.
Cash payment	A dummy variable equal to 1.0 if the payment method is 100% cash.
Stock payment	A dummy variable equal to 1.0 if the payment method is 100% stock.
Rumor	A dummy variable equal to 1.0 if rumors about the merger leaked in the financial press during the six months preceding the announcement.
Acquirer past performance	The accumulated acquirer performance during the estimation period.

References

- Aktas, Nihat, Eric de Bodt, Michel Levasseur, and André Schmitt, 2001. The emerging role of the European Commission in merger and acquisition monitoring: The Boeing/McDonnell Douglas case. *European Financial Management* 7, 447–480.
- Aktas, Nihat, Eric de Bodt, and Richard Roll, 2004. Market response to European regulation of business combinations. *Journal of Financial and Quantitative Analysis* 39, 731–756.
- Aktas, Nihat, Eric de Bodt, and Richard Roll, 2007. Is European M&A regulation protectionist? *Economic Journal* 117, 1096–1121.
- Andrade, Gregor, Mark Mitchell, and Erik Stafford, 2001. New evidence and perspectives on mergers. *Journal of Economic Perspectives* 15, 103–120.
- Bergman, Mats A., Maria Jakobsson, and Carlos Razo, 2005. An econometric analysis of the European Commission's merger decisions. *International Journal of Industrial Organization* 23, 717–737.
- Bernile, Gennaro, and Evgeny Lyandres, 2010. Merger synergies along the supply chain. Working paper, Boston University, 42 pages.
- Betton, Sandra, B. Espen Eckbo, and Karin S. Thorburn, 2008. Corporate takeovers. In: B. Espen Eckbo (ed.), *Handbook of Corporate Finance, Empirical Corporate Finance Volume 2* (Elsevier, North Holland, Amsterdam), pp. 291–429.
- Bittlingmayer, George, and Thomas W. Hazlett, 2000. DOS Kapital: Has antitrust action against Microsoft created value in the computer industry? *Journal of Financial Economics* 55, 329–359.
- Boehmer, Ekkehart, Jim Musumeci, and Annette Poulsen, 1991. Event-study methodology under conditions of event-induced variance. *Journal of Financial Economics* 30, 253–272.
- Brown, Stephen J., and Jerold B. Warner, 1985. Using daily stock returns: The case of event studies. *Journal of Financial Economics* 14, 3–31.
- Campbell, Cynthia, Arnold R. Cowan, and Valentina Salotti, 2010. Multi-country event study methods. *Journal of Banking and Finance* 34, 3078–3090.
- Danbolt, Jo, 2004. Target company cross-border effects in acquisitions into the UK. *European Financial Management* 10, 83–108.
- Dinç, I. Serdar, and Isil Erel, 2011. Economic nationalism in mergers and acquisitions. SSRN working paper, <http://ssrn.com/abstract=1361107>.
- Duso, Tomaso, Klaus Gugler, and Florian Szücs, 2010. An empirical assessment of the 2004 EU merger policy reform. SSRN working paper, <http://ssrn.com/abstract=1721412>.
- Duso, Tomaso, Klaus Gugler, and Burçin Yurtoglu, forthcoming. How effective is European Merger Control? *European Economic Review*.
- Duso, Tomaso, Damien J. Neven, and Lars-Hendrik Röller, 2007. The political economy of European merger control: Evidence using stock market data. *Journal of Law and Economics* 50, 455–489.
- Eckbo, B. Espen, 1983. Horizontal mergers, collusion, and stockholder wealth. *Journal of Financial Economics* 11, 241–273.
- Eckbo, B. Espen, 1985. Mergers and the market concentration doctrine: Evidence from the capital market. *Journal of Business* 58, 325–349.

- Eckbo, B. Espen, 1992. Mergers and the value of antitrust deterrence. *Journal of Finance* 47, 1005–1029.
- Eckbo, B. Espen, Vojislav Maksimovic, and Joseph Williams, 1990. Consistent estimation of cross-sectional models in event studies. *Review of Financial Studies* 3, 343–365.
- Eckbo, B. Espen, and Peggy Wier, 1985. Antimerger policy under the Hart-Scott-Rodino Act: A reexamination of the market power hypothesis. *Journal of Law and Economics* 28, 119–149.
- Fama, Eugene F.; Lawrence Fisher; Michael C. Jensen, and Richard Roll, 1969. The adjustment of stock prices to new information. *International Economic Review* 10, 1–21
- Fee, C. Edward, and Shawn Thomas, 2004. Sources of gains in horizontal mergers: evidence from customer, supplier, and rival firms. *Journal of Financial Economics* 74, 423–460.
- Financial Times*, 2001. Regulating the EU regulator. July 6.
- Fuller, Kathleen, Jeffrey M. Netter, and Mike Stegemoller, 2002. What do returns to acquiring firms tell us? Evidence from firms that make many acquisitions. *Journal of Finance* 57, 1763–1793.
- Goergen, Marc, and Luc Renneboog, 2004. Shareholder wealth effects of European domestic and cross-border takeover bids. *European Financial Management* 10, 9–45.
- Greene, William H., 2008. Instrumental variables estimation. In *Econometric Analysis*, Sixth Edition, William H. Greene, ed. Pearson International Edition.
- Jensen, Michael C., and Richard S. Ruback, 1983. The market for corporate control: The scientific evidence. *Journal of Financial Economics* 11, 5–50.
- Lyons, Bruce, 2009. An economic assessment of European Commission merger control: 1958–2007. In: Xavier Vives (ed.), *Competition Policy in the EU: Fifty Years on from the Treaty of Rome* (Oxford University Press, Oxford), pp. 135–175.
- Martynova, Marina, and Luc Renneboog, 2008. A century of corporate takeovers: What have we learned and where do we stand? *Journal of Banking and Finance* 32, 2148–2177.
- Mulherin, J. Harold, and Audra Boone, 2000. Comparing acquisitions and divestitures. *Journal of Corporate Finance* 6, 117–139.
- Netter, Jeffrey M., Mike Stegemoller, and M. Babajide Wintoki, forthcoming. Implications of data screens on merger and acquisition analysis: A large sample study of mergers and acquisitions from 1992–2009. *Review of Financial Studies*.
- Neven, Damien J., and Lars-Hendrik Röller, 2002. Discrepancies between markets and regulators: An analysis of the first ten years of EU merger control. In: *The Pros and Cons of Merger Control* (Stockholm: Swedish Competition Authority), pp. 13–38.
- Priest, George, and Franco Romani, 2001. The GE/Honeywell precedent. *The Wall Street Journal*, (June 20), p. A-18.
- Roberto, Sondra, 1998. Boeing/McDonnell Douglas merger review: A serious stretch of European competition powers. *Brooklyn Journal of International Law* 24, 593–616.
- Schwert, William, 1981. Using financial data to measure the effects of regulation. *Journal of Law and Economics* 24, 121–158.

Shahrur, Husayn, 2005. Industry structure and horizontal takeovers: Analysis of wealth effects on rivals, suppliers, and corporate customers. *Journal of Financial Economics* 76, 61–98.

Slovin, Myron B., Marie E. Sushka, and Carl D. Hudson, 1991. Deregulation, contestability, and airline acquisitions. *Journal of Financial Economics* 30, 231–251.

Song, Moon H., and Ralph A. Walkling, 2000. Abnormal returns to rivals of acquisition targets: A test of the acquisition probability hypothesis. *Journal of Financial Economics* 55, 143–171.

Zhang, Ivy Xiyang, 2007. Economic consequences of the Sarbanes-Oxley Act of 2002. *Journal of Accounting and Economics* 44, 74–115.

Table 1
Sample of merger proposals

This table reports the sample of observations used in the multivariate analysis. Column 1 considers the aggregate sample, which includes mergers submitted to the European Commission (EC) during 1990–2007 when market data and a set of identifiable European industry rivals are available. Column 2 refers to the subsample analyzed by Aktas, de Bodt and Roll (2007). Column 3 includes the 184 additional merger notifications collected for this study. Panel A proposes a breakdown of the sample by type of EC regulatory decision; Panel B uses acquirer nationality. *N* denotes the number of observations.

	(1) 1990–2007		(2) 1990–2000		(3) 2001–2007	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
<i>Panel A. Regulatory decision</i>						
Outright approval	379	80.0%	235	81.0%	144	78.3%
Approval after remedies	46	9.7%	25	8.6%	21	11.4%
In-depth investigation	44	9.3%	30	10.3%	14	7.6%
Withdrawn	5	1.1%	0	0.0%	5	2.7%
Total	474	100.0%	290	100.0%	184	100.0%
<i>Panel B. Nationality of the acquirer</i>						
Acquirer from EU	282	59.5%	186	64.1%	96	52.2%
Foreign acquirer	192	40.5%	104	35.9%	88	47.8%
Total	474	100.0%	290	100.0%	184	100.0%

Table 2
Initial announcement abnormal returns

This table reports the average cumulative abnormal returns (CAR) for acquirers, targets, deals (acquirers plus targets, weighted by their respective market values on the last day of the estimation window), and industry rivals. The sample covers merger proposals announced during 1990–2007 that went through the EC regulatory procedure. The results in column 2 are from Aktas, de Bodt, and Roll (2007). The CAR are the 11-day market-adjusted abnormal returns estimated around the announcement day of the merger. Reported p -values are obtained from a percentile- t bootstrap procedure, based on the modified Boehmer, Musumeci, and Poulsen (1991) method (see Section III.C). N denotes the number of observations.

	(1) 1990–2000			(2) 2001–2007		
	N	CAR	p -value	N	CAR	p -value
Acquirers	579	0.10%	0.25	628	−0.44%	0.20
Targets	482	9.05%	0.00	354	15.57%	0.00
Deals	439	0.88%	0.00	192	2.59%	0.00
Rivals	511	−0.24%	0.08	633	−0.38%	0.15

Table 3

Initial announcement effects, ultimate regulatory decision, and nationality

This table reports the deal and European rival cumulative abnormal returns (CAR), classified by the ultimate outcome of regulatory intervention. Three regulatory outcomes are possible: (1) outright approval at the end of a one-month review period, (2) approval after remedies after the one-month review, and (3) in-depth investigation. The table provides also the rival CAR by home country of the acquirer (i.e., from one of the European Union countries or not). The CAR are 11-day market-adjusted abnormal returns estimated around the announcement day of the merger. The sample covers merger proposals announced over the period 1990–2007 that went through the regulatory hurdles of the EC. The results in column 1 are from Aktas, de Bodt, and Roll (2007). Reported *p*-values are obtained from a percentile-t bootstrap procedure based on the modified Boehmer, Musumeci, and Poulsen (1991) method (see Section III.C). *N* denotes the number of observations.

	(1) 1990–2000			(2) 2001–2007		
	<i>N</i>	CAR	<i>p</i> -value	<i>N</i>	CAR	<i>p</i> -value
Outright approval						
Deals	365	0.93%	0.00	152	2.38%	0.00
Rivals	384	−0.53%	0.11	549	−0.36%	0.08
Rivals of EU acquirer deal	248	−0.72%	0.12	338	−0.34%	0.45
Rivals of non-EU acquirer deals	136	−0.19%	0.33	211	−0.40%	0.10
Difference EU vs. non-EU acquirers			0.52			0.11
Approval after remedies						
Deals	39	−0.27%	0.86	21	2.59%	0.07
Rivals	43	−0.11%	0.71	43	−0.15%	0.42
Rivals of EU acquirer deals	32	0.51%	0.54	25	−0.35%	0.53
Rivals of non-EU acquirer deals	11	−1.92%	0.26	18	0.14%	0.37
Difference EU vs. non-EU acquirers			0.27			0.39
In-depth investigation						
Deals	35	1.66%	0.00	14	4.43%	0.01
Rivals	40	1.38%	0.01	31	−0.31%	0.43
Rivals of EU acquirer deals	21	1.55%	0.03	17	−0.26%	0.46
Rivals of non-EU acquirer deals	19	1.20%	0.14	14	−0.36%	0.34
Difference EU vs. non-EU acquirers			0.41			0.42

Table 4
Determinants of the probability of EC intervention

This table presents the results of a standard probit regression. The dependent variable is equal to 0 if the European Commission (EC) approves a merger proposal outright. It takes a value of 1 in the case of approval subject to remedies or in-depth investigation. The independent variables are described in the Appendix. Estimation is by maximum likelihood. The LR statistic provides a likelihood ratio test of the null hypothesis that all independent variables are jointly insignificant. *P*-values, in parentheses beneath the coefficient estimates, are obtained by a percentile-*t* bootstrap procedure, using 1,000 replications, as described by Aktas, de Bodt, and Roll (2007). The results in column 1 are based on the sample from Aktas, de Bodt, and Roll (2007). In column 2, the probit model is estimated using the EC decisions during 2001–2007. Columns 3–5 use the merged sample, from 1990–2007.

Variable	(1) 1990–2000	(2) 2001–2007	(3)	(4) 1990–2007	(5)
Deal CAR	0.64 (0.43)	2.47 (0.04)	0.97 (0.19)	1.16 (0.17)	1.00 (0.18)
Target size (x 10 ⁵)	0.30 (0.16)	–2.39 (0.16)	0.18 (0.28)	0.11 (0.37)	0.12 (0.35)
Acquirer size (x 10 ⁵)	–0.30 (0.10)	0.65 (0.00)	0.17 (0.09)	0.17 (0.09)	0.21 (0.05)
Acquirer/target correlation	0.51 (0.17)	0.60 (0.15)	0.37 (0.16)	0.37 (0.18)	0.44 (0.14)
Deal value (x 10 ³)	0.05 (0.00)	0.02 (0.11)	0.03 (0.00)	0.03 (0.00)	0.03 (0.00)
Non-EU acquirer	–0.13 (0.31)	–0.15 (0.29)	–0.12 (0.21)	–0.13 (0.23)	–0.12 (0.22)
Rival CAR	3.34 (0.02)	–0.31 (0.49)	2.86 (0.03)	2.86 (0.02)	2.87 (0.01)
Non-EU acquirer × rival CAR	–4.43 (0.08)	1.42 (0.45)	–3.36 (0.07)	–3.78 (0.03)	–4.96 (0.01)
After 2004				–0.29 (0.03)	
After 2004 x non-EU acquirer × rival CAR				9.28 (0.08)	
After 2002					–0.15 (0.18)
After 2002 x non-EU acquirer × rival CAR					10.78 (0.02)
LR statistic	56.88 (0.00)	15.48 (0.05)	52.54 (0.00)	56.30 (0.00)	57.30 (0.00)
Pseudo R-square (%)	20.19	8.65	11.40	12.22	12.44
Number of observations	290	184	474	474	474

Table 5

Court of First Instance 2002 decisions and announcement returns for potential acquirers

This table reports the average cumulative abnormal returns (CAR) for a sample of potential acquirers around the announcement dates of the three Court of First Instance judgments in 2002. The considered judgments and their announcement date are Airtours/First Choice on June 6 (Panel A), Schneider/Legrand on October 22 (Panel B), and Tetra Laval/Sidel on October 25 (Panel C). The potential acquirers are firms that submitted at least one merger proposal to the EC during 1990–2001. The CAR are 11-day market-adjusted abnormal returns estimated around the announcement day of the judgment in Panel A. The announcements of the two judgments in Panels B and C are very close, we used a 3-day event window (to avoid overlapping windows). The reported p -values were obtained from a percentile-t bootstrap procedure based on the modified Boehmer, Musumeci, and Poulsen (1991) method (see Section III.C). N denotes the number of observations.

	N	CAR	P -value
<i>Panel A. Airtours/First Choice</i>			
All acquirers	335	−0.94%	0.07
EU acquirers	193	−0.40%	0.55
Non-EU acquirers	142	−1.68%	0.00
Difference EU vs. non-EU acquirers			0.07
US acquirers	99	−2.16%	0.01
Non-US acquirers	43	−0.57%	0.37
Difference US vs. non-US acquirers			0.10
<i>Panel B. Schneider/Legrand</i>			
All acquirers	335	0.11%	0.32
EU acquirers	193	−0.51%	0.03
Non-EU acquirers	142	0.94%	0.12
Difference EU vs. non-EU acquirers			0.00
<i>Panel C. Tetra Laval/Sidel</i>			
All acquirers	335	−0.06%	0.27
EU acquirers	193	−0.28%	0.17
Non-EU acquirers	142	0.24%	0.43
Difference EU vs. non-EU acquirers			0.31

Table 6
First-stage OLS instrumental variable formation

This table presents the results of the first-stage OLS regression used to build the deal CAR instrument. The dependent variable is the deal CAR, which corresponds to the 11-day market-adjusted abnormal returns estimated around the announcement day of the merger. Independent variables are described in Appendix. The Fisher statistic tests whether all independent variables are jointly insignificant.

Variable	(1) 1990–2000	(2) 2001–2007	(3) 1990–2007
Constant	0.009 (0.58)	0.003 (0.86)	0.019 (0.10)
Non-EU acquirer	0.013 (0.33)	–0.003 (0.85)	–0.54 E-5 (0.98)
Large EU country acquirer	0.003 (0.80)	0.008 (0.58)	0.001 (0.90)
Deal value (x 10 ⁵)	–0.039 (0.18)	0.157 (0.11)	–0.006 (0.82)
Target size (x 10 ⁵)	–0.021 (0.32)	–0.256 (0.05)	–0.023 (0.25)
Acquirer size (x 10 ⁵)	–0.017 (0.09)	–0.014 (0.13)	–0.023 (0.00)
Target to acquirer relative size (x 10 ³)	–0.036 (0.64)	60.67 (0.00)	–0.04 (0.59)
Acquirer to target correlation	0.089 (0.00)	–0.003 (0.91)	0.048 (0.01)
Tender offer	–0.010 (0.35)	0.014 (0.16)	0.002 (0.81)
Cash payment	0.003 (0.81)	0.003 (0.80)	–0.62 E-3 (0.94)
Stock payment (x 10 ³)	0.302 (0.98)	–23.81 (0.10)	–0.013 (0.21)
Rumor	–0.020 (0.04)	0.2 E-3 (0.99)	–0.015 (0.06)
Acquirer past performance	0.011 (0.43)	0.021 (0.16)	0.016 (0.13)
Fisher statistic	2.11 (0.02)	5.17 (0.00)	2.85 (0.00)
Adjusted R-square (%)	4.0	22.0	5.0
N	290	184	474

Table 7

Determinants of the probability of EC intervention: Two-stage instrumental variable probit

This table presents the results of the two-stage instrumental variable probit regression. The dependent variable is equal to 0 if the European Commission (EC) approves a merger proposal outright. It takes a value of 1 in the case of approval subject to remedies or an in-depth investigation. The independent variables are described in the Appendix. Estimation is by maximum likelihood. The LR statistic provides a likelihood ratio test for the null hypothesis that all independent variables are jointly insignificant. *P*-values, in parentheses beneath the coefficient estimates, are obtained by a percentile-t bootstrap procedure, using 2,500 replications, as described by Aktas, de Bodt, and Roll (2007). The instruments for deal CAR are fitted values from a first-stage OLS estimation. In column 1, the probit is estimated using EC decisions during 1990–2000, whereas in column 2, it is estimated using EC decisions during 2001–2007. Columns 3–5 use the merged sample, from 1990–2007.

Variable	(1) 1990–2000	(2) 2001–2007	(3)	(4) 1990–2007	(5)
Deal CAR instrument	–11.59 (0.08)	2.76 (0.31)	–12.03 (0.03)	–10.27 (0.07)	–10.09 (0.06)
Target size (x 10 ⁵)	0.04 (0.62)	–2.04 (0.19)	–0.14 (0.21)	–0.14 (0.25)	–0.14 (0.25)
Acquirer size (x 10 ⁵)	–0.47 (0.01)	0.63 (0.00)	–0.12 (0.13)	–0.08 (0.21)	–0.05 (0.24)
Acquirer/target correlation	1.64 (0.02)	0.59 (0.14)	0.97 (0.01)	0.91 (0.03)	0.93 (0.01)
Deal value (x 10 ³)	0.05 (0.00)	0.02 (0.15)	0.02 (0.00)	0.03 (0.00)	0.03 (0.00)
Non-EU acquirer	0.01 (0.36)	–0.13 (0.31)	–0.11 (0.24)	–0.12 (0.22)	–0.12 (0.24)
Rival CAR	3.40 (0.01)	0.13 (0.47)	3.11 (0.01)	3.14 (0.01)	3.12 (0.01)
Non-EU acquirer × rival CAR	–5.40 (0.04)	1.62 (0.44)	–3.22 (0.06)	–3.65 (0.05)	–4.78 (0.01)
After 2004				–0.21 (0.16)	
After 2004 x non-EU acquirer × rival CAR				9.89 (0.07)	
After 2002					–0.21 (0.15)
After 2002 x non-EU acquirer × rival CAR					11.20 (0.01)
LR statistic	58.97 (0.00)	13.73 (0.09)	54.49 (0.00)	57.01 (0.00)	59.81 (0.00)
Pseudo R-square (%)	20.93	7.67	11.83	12.37	12.98
Number of observations	290	184	474	474	474