

EX-POST REVIEW OF MERGER CONTROL DECISIONS

A study for the European Commission prepared by
Lear – Laboratorio di economia, antitrust, regolamentazione

The authors of this report are* :

Paolo Buccirossi
Lorenzo Ciari
Tomaso Duso
Sven-Olof Fridolfsson
Giancarlo Spagnolo
Cristiana Vitale

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1 Introduction

1.1 This study has been commissioned by the Competition Directorate-General of the European Commission (from hereon DG Competition) to develop “*a detailed methodological approach for the ex-post review of European Commission decisions in the field of merger control, namely for assessing the impact of the Commission decision on market developments*” and to apply “*the afore-mentioned methodological approach to a particular case*”: the merger between the power cable producers Pirelli and BICC¹. Hence this study is articulated in two Parts: Part I which discusses the theory and presents the methodology, and Part II which describes its application to the case study.

1.2 In order to address the two tasks set out by the DG Competition, we have had to determine what should be the aims of an ex-post assessment of a merger decision. It is very important to understand clearly what these aims are, as the whole methodology herein presented hinges on them. These aims are:

- 1) to establish whether the market structure arising from the decision is apt to pursue the economic goal of the EU merger control regulation better than the market structures that could have arisen from alternative decisions available to the Commission within its legal powers; and
- 2) to assess whether the analysis adopted to reach the decision is correct and complete.

1.3 The first aim is obvious because it is essential to verify if a decision has reached the goal that justifies the existence of the merger control policy. However we believe that this is not sufficient because to improve the Commission’s decision-making process and to minimise the number of inappropriate decisions it is also necessary to understand why a decision was appropriate or not. Hence, the methodology we propose is articulated into an “assessment of the decision with respect to the ultimate economic goal” and “an assessment of the analysis that underpins the decision”. Their key steps are outlined in Chapter 2

¹ M.1882 – Pirelli/BICC (Commission Decision of 19.07.2000).

- 1.4 To perform an assessment of a decision with respect to its intended goal requires clarifying what is the goal of the EU merger control regulation. Chapter 3 is dedicated to answering this question. It outlines the economic debate that still rages on what should be the economic objective of the merger control policy between those that believe that all antitrust interventions should aim at maximising consumer welfare and those that consider total welfare to be the correct standard. The arguments therein discussed are extremely interesting and provide food for thoughts, but the still unsettled nature of the question does not affect this study.
- 1.5 Indeed, despite some ambiguity in the wording of the EU merger guidelines, all observers agree that the European Commission adopts a consumer welfare standard, clearing mergers only if they are not likely to negatively affect final consumers. Therefore, in the remainder of this study we will assume that the Commission's objective is to protect consumer welfare. It should also be stressed that this study does not judge whether the objective of EU merger control policy is correct or not, but simply provides a methodology that allows to verify whether the Commission's decisions meet the economic objective it has set for itself. The debate presented in Chapter 3 is just meant to show that the Commission's goal is not the only possible one and that economists have not agreed yet on what the best one should be.
- 1.6 Given the above, the question the methodology has to answer then becomes whether the decision under exam has protected consumer welfare or whether this would have been better achieved had the Commission adopted a different decision, the counterfactual. Chapter 4 explains what determines consumer welfare, how to define the appropriate counterfactuals for each possible decision the Commission can take (given the EU legal framework), how to structure the comparative assessment and what empirical techniques can be employed.
- 1.7 Once it is ascertained whether the decision met or not its goal, the attention must be addressed to understand why it did or it did not. This requires an examination of the analysis that underpinned that decision. The analysis is the nexus of factual assertions and logical propositions through which the Commission attempts to identify the relevant casual relationships between the proposed merger and the development of the market. This analysis is correct only if it includes all the facts and the logical propositions that identify the key market characteristics that

determine the effects of the merger (i.e. if no key factor has been overlooked) and if all of them are correct.

- 1.8 Hence, the assessment of the analysis requires identifying the key arguments that led to the decision, evaluating their validity, and verifying their completeness. Chapter 5, which ends Part I, explains how to perform this assessment and provides useful examples.
- 1.9 Part II applies the two types of assessment just discussed to the case study selected by DG Competition, i.e. the merger between Pirelli and BICC. After a brief description of the case in Chapter 6, the following two Chapters show that the decision to approve this merger was appropriate and that the analysis was correct and almost complete.
- 1.10 The study is completed by a set of Appendices that discuss more in details some aspects that may not be of general interests. Appendix I contains a review of the economic and antitrust literature on the subject of ex-post assessments of the effectiveness of competition law enforcement, and in particular, of the ex-ante merger control rule.
- 1.11 Appendix II is devoted to a detailed presentation of the empirical and econometric techniques available for the assessment of a decision with respect to its goal. For each of these techniques we discuss their data requirement and mode of use, how easy it is to interpret their result, the types of decision for which they are appropriate, the counterfactuals they can evaluate and their strength and weaknesses.
- 1.12 Appendix III and Appendix IV contain the templates of two questionnaires that can support in the evaluation of the analysis of a specific decision. The first one provides a set of questions whose objective is to identify the key arguments of the analysis, while the second one is aimed at spotting any missing key factors. These two questionnaires, appropriately adapted to the case at hand, can be submitted to a panel of expert to obtain an unbiased examination of the decision.

PART I - THE METHODOLOGY

2 Outline of the proposed methodology

2.1 This Chapter gives a broad overview of the methodology proposed in this study. It starts by discussing its aims, because the structure of the assessment is determined by its objectives. It then describes the various phases of the evaluation and the empirical techniques that can be used to support it. The last sections discuss who should perform such an assessment, how much time should elapse between the decision and its assessment and how best to obtain the necessary data. These latter issues are important to ensure that the methodology is correctly applied so that the result of the assessment is reliable and unbiased.

2.1 The aims of the proposed methodology

2.2 The ex-post assessment of merger decisions should have, in our view, two fundamental aims:

- 1) to establish whether the market structure arising from the decision is apt to pursue the economic goal of the EU Merger Control Regulation² (thereafter “the MCR”) better than the market structures that could have arisen from alternative decisions within the set of decisions that the Commission can legally take; and
- 2) to assess whether the analysis adopted to reach the decision was correct.

2.3 We will refer to the first aim as “the assessment with respect to the ultimate economic goal”, or “the substantive assessment”³, and we will refer to the second one as “the assessment of the analysis”.

2.4 Both types of assessment are important because the ex-post evaluation of a merger decision should not be confined to the verification of whether it met the MCR’s ultimate goal, but should also help to improve the

² Regulation No. 139/04, which replaced Regulation No. 4064/89.

³ The term substantive refers here to the fact that this type of assessment is meant to verify if the decision meets its intended goal or not, and should not be read in contrast to a formal or legal assessment. Neither the substantive assessment nor the assessment of the analysis examine a decision in formal or legal terms.

Commission's decision making process. Improving the enforcement of the MCR implies minimising the number of inappropriate decisions, and to achieve this it is necessary to know where the error lies, when Commission incurs in an error while assessing the effects of a merger.

- 2.5 An error could consist in a decision that did not properly pursue its intended economic goal, but could also consist in a mistaken inference on how the market would be affected by the merger. The latter may not have led to a “wrong” decision, i.e. to a decision that did not meet the MCR's goal, but, since it could have, the error should be identified and understood, so that it can be avoided in the future.

2.2 The assessment with respect to the ultimate economic goal

- 2.6 To assess whether a merger decision reached by Commission was appropriate, the reviewer needs to answer two questions:

1) What is the ultimate economic goal of the MCR?

- 2.7 It is not possible to perform an assessment of a decision without clarity about what this is aiming for; further, the nature of this goal clearly determines how to perform the assessment of a decision. Chapter 3 is devoted to answering this question.

2) Would this goal have been better pursued had the Commission adopted a different decision?

- 2.8 Responding to this second question requires to identify the possible alternative decisions that the Commission could have reached, i.e. the counterfactuals. In principle this may seem a difficult exercise because, if we consider all the possible remedies it could have imposed, there are many alternative decisions the Commission could have taken. However, the set of options open to the Commission is much less wide than one could think because the legal framework within which it operates imposes some restrictions.

- 2.9 According to the MCR, the Commission can only impose on the merging firms conditions and obligations that the parties themselves proposed. Therefore, the Commission does not have the power to clear a merger subject to remedies other than those put forward by the parties.

- 2.10 Given this legal framework, the set of the possible decisions that the Commission can adopt is strongly determined by the behaviour of the parties during the proceeding. If the parties do not propose any set of remedies, the Commission can only 1) authorize or 2) prohibit the merger; whereas if the parties propose a set of undertakings the Commission can: 1) authorize the merger without imposing any remedy, 2) authorize it imposing the remedies proposed by the parties, or 3) prohibit the merger. Hence, if the parties propose a set of remedies, there are always two counterfactuals, but if the parties do not offer any remedy, there is one, and only one, possible counterfactual, because a conditional clearance would not be legally possible.
- 2.11 Once the relevant counterfactuals have been defined, the substantive assessment of a decision requires a comparison of the market development that followed the actual decision with the one that would have resulted from each of the relevant alternatives. Chapter 4 discusses more in details how to perform the substantive assessment of a merger decision.

2.3 The assessment of the analysis

- 2.12 The *analysis* is the nexus of factual assertions and inference links through which the Commission attempts to identify the relevant casual relationships between the proposed merger and the development of the market equilibrium. The assessment of the analysis is aimed at verifying the completeness and correctness of this set of inferences and assertions.
- 2.13 The assessment of the analysis of a specific decision is carried out in three stages:
- 1) The first consists in identifying the key arguments that led to this decision, which may refer to: the relevant market(s); the competitive concerns raised by the merger; and the presence of any countervailing factors;
 - 2) The second consists in evaluating the validity of each of these key arguments; while
 - 3) The third consists in verifying the completeness of these key arguments.
- 2.14 Chapter 5 provides more details on how to perform this assessment.

2.4 The empirical techniques

- 2.15 In general all the empirical and econometric techniques that can be employed for the ex-ante analysis of the effects of a merger are also applicable in the ex-post evaluation. The crucial difference between their ex-ante and ex-post use lies in the amount of information available.
- 2.16 The most important techniques on which we rely in the methodology proposed in this report are:
- structural models and simulations;
 - evaluation methods;
 - event studies; and
 - surveys.
- 2.17 These techniques are not mutually exclusive and the best approach would be to use more than one simultaneously in order to minimize the probability of errors in the evaluation. However, there are cases when some of them cannot be used due to the lack of the appropriate data or to the nature of the market. For example, evaluation methods can only be used to reliably estimate the effects of a set of mergers, and not of a single one, because a cross section of observations is necessary and the event study methodology requires the firms to be quoted on the stock market.
- 2.18 Below we shall briefly discuss each of these techniques. More details on their data requirements, their mode of use, and their relative strengths and weaknesses can be found in Appendix II, whereas in Chapter 4 we shall provide examples on when these can be used in performing the ex-post assessment of a merger decision. In Chapter 7 we show how to apply them to a specific decision.

2.4.1 Structural models and simulations

- 2.19 This technique tries to link economic theory and statistical analysis. The central idea behind it is to empirically estimate the parameters of a set of structural equations that describe the market under exam. These equations are derived from game theoretic models of oligopolistic interactions.
- 2.20 The parameters can be first estimated in the ex-ante evaluation of the merger with the pre-merger data and used to make prediction about the post-merger scenarios under different assumptions. For example, by

playing around with the cost parameters it is possible to determine the cost savings that would render a specific merger welfare enhancing or to simulate different equilibria, assuming that the way in which firms interact changes after the merger.

- 2.21 The same model can then be estimated with the post-merger data and used to support the ex-post evaluation of the Commission's decision. The results of the ex-post estimations can also be compared with the simulated outcome obtained with ex-ante data. Clearly, in interpreting the results, it is important to bear in mind that the ex-post data reflect two types of effects: i) those generated by the merger and ii) those produced by the Commission's decision. Therefore, what we observe are the combined effects on the market of both the merger and the decision, but simulations can be used to disentangle the two.
- 2.22 When using structural models it is important to consider that there is usually a trade-off between ease of applicability and precision of the estimated results: the simpler is the model the less reliable is likely to be the outcome.
- 2.23 Structural models allow to consider the simplest counterfactuals (i.e. the situation in which the merger is blocked or in which the merger is unconditionally cleared) as well as approval decisions with structural remedies. They are not apt to deal with decisions with behavioural remedies because incorporating the subtleties of these conditions would render the model extremely complex.
- 2.24 The major disadvantage of this methodology is that a large set of assumptions have to be made, both on its theoretical structure and on its stochastic part, in order to estimate the model. Hence, it is important to perform serious robustness check, since these models can be quite sensitive to changes in the main assumptions. Another drawback of the methodology is its high data requirement that is often difficult to meet.

Box 2.1: Data requirement if a structural model is employed

This methodology has high data requirements. Clearly the amount of data needed depends on the complexity of the economic model adopted, but equally the availability and quality of the data determines which model can be used.

Therefore, the reviewer has to:

1) start by collecting some data on the relevant product market:

- to understand how it works and, hence, which type of economic model best represents the demand curve(s), the firms' cost structures and the firms' behaviour; and
- to have a feel for the level of aggregation of the available data. Ideally one would want data on individual firms and consumers, that allow a much more careful analysis of the market interactions, but often, unfortunately, data are aggregated at the market level, which imposes the use of further assumptions.

2) specify an appropriate economic model that represents how firms interact in the market under exam, and define the stochastic process that generated the observed data;

3) collect the necessary data, through surveys or by buying them from research organisations, this usually includes:

- prices,
- quantities,
- cost shifters, such as input prices,
- demand shifters, such as income and density,
- information on the characteristics of the consumers, such as income, education, age, sex, and,
- data on the main observable product characteristics, when there is product differentiation ⁴;

⁴ The relevant characteristics clearly depend on the nature of the products. For instance in the case of cars these are: horse power, fuel efficiency, air conditioning, number of doors and other optional.

The greatest effort should be placed in obtaining firm-level data and when possible panels of data, because the cross-sectional and time variations allow a more careful treatment of the industry and country-specific fixed effects and of time trends.

4) assess and address possible measurement issues - since the observed data does not come from a controlled experiment all kinds of statistical problems can arise that could render the estimates inconsistent or biased.

2.4.2 Evaluation methods

- 2.25 The evaluation methods, which encompass different estimation techniques, consist in comparing the behaviour of two groups of agents: the control group and the experimental group. The basic idea is that, other things being equal, the difference in performance between the two groups is an estimate of the policy effect, which in our case is the Commission's decision.
- 2.26 What is key in an evaluation method is the identification of the control group because the assignment to the treatment may not be random, i.e. the agents self-select themselves to be treated. Hence, there can be a correlation between the choice to enrol in the programme and the error term of the outcome that would lead to the inconsistent estimation of the treatment effect parameter. This correlation comes from the fact that the same unobservable characteristics affecting the decision to merge also affect the performance of the merging firm.
- 2.27 There are four different types of evaluation methods: social experiments, natural experiments, matching methods, and instrumental variables. Social experiments⁵ rely on the experiment being completely random and, thus, are seldom useful in economics where the endogeneity of the policy has to be considered. Natural experiments and matching methods try to find a "naturally" occurring comparison group that can mimic the properties of the control group. In the case of natural experiment it is necessary to find a "naturally" untreated market which is very similar to the market affected by the Commission decision, where by similar we imply a market with practically the same demand and supply conditions. The matching

⁵ This methodology is widely used in medical analysis because the endogeneity problem is rare and easily addressed.

method, instead, tries to match the treated firms (e.g. the merging firms) with untreated ones by using some observable characteristics. In this case, it is the reviewer that generates an untreated group by matching the merging firms to similar firms. The instrumental variable approach consists in finding variables that explain the policy treatment, but which do not influence the outcome of interest, so as to overcome the endogeneity problem.

- 2.28 Even though there is not much academic literature on the use of natural experiments in merger control, the logic of this instrument is extensively used (ex ante) by antitrust authorities, since it (wrongly) appears to be quite simple to use, at least in its most basic form. For instance, the authority often examines what happened in markets similar to the one under exam but where no merger took place.
- 2.29 In the last two decades these methods have attracted large attention in the economic literature and, despite the intuitive simplicity of the basic idea, the level of sophistication has strongly increased over time. It is necessary to stress that, as for the structural models, when applying these methods, there is a clear trade-off between ease of applicability and precision of the estimated results. Anyway, if they are properly carried out, these methods can be a very helpful and flexible instrument, since they rely less heavily on un-testable theoretical assumptions and stochastic restrictions than structural models.
- 2.30 The strength of this set of methodologies is their flexibility. Another useful characteristic is that there is no strong necessity to define the product market, which can be a problematic issue when using structural methods.
- 2.31 However, the evaluation methods produce reliable estimates of the competitive effects only if applied to a set of mergers, because a cross section of observations is necessary for their reliable application; hence, they are not very appropriate, though they can be used, for the assessment of a single merger decision.

Box 2.2: Data requirement if an evaluation method is used

The data requirements of this set of methods depend on the specific one adopted. Anyway some general remarks are possible. To start with the reviewer needs:

- 1) data on the merging firms and their competitors for a set of mergers, that possibly happened in the same industry at not too distant dates⁶
- 2) data on one outcome variable, such as prices, profits, R&D expenditure or number of patents; this can be derived from balance sheet data that can be purchased from Global Vantage, Compustat, Amadeus or Datastream, or collected from the internet or by directly contacting the firms;
- 3) data on the exogenous covariates, i.e. demand and cost shifters, such as income, population density and input prices;
- 4) data on other exogenous variables to identify the selection into the treatment (i.e. the endogenous merger decisions). These variables should be selected so that they are not affected by the merger decision in order to avoid endogeneity problems⁷;

2.4.3 Event studies

- 2.32 This methodology consists in assessing the stock markets' reactions to an event, in this case the Commission's decision, so as to derive from these a view on the effect of the latter on the relevant market(s). Event studies rely on the assumptions that financial markets are efficient and that the expectations of the agents are rational. If these assumptions are true a firm's stock price should always represent the discounted value of its flow

⁶ As discussed in Appendix II, the lesser the heterogeneity, the better the results of the estimation. Hence the mergers should take place all within the same industry and at not too distant dates (so that market structure and market players have not changed much).

⁷ Hence, if the reviewer uses the firms' characteristics (such as size, number of employees, value of total assets and R&D expenditure) to explain why some firms merged and others did not, these characteristics should be measured before the merger.

of profits and when an event is announced, which is expected to affect the profits of a firm, the stock price should adapt to reflect this expectation.

- 2.33 Any change in the stock prices of the firms operating in the affected market (but the method can also be applied to the customers when these are firms⁸) relative to the value that would have been observed had the event not occurred is referred to as “abnormal returns”. The sign and size of these abnormal returns are then tested and analysed to derive information on the expected effects of the event on the market.
- 2.34 Therefore, it is possible to infer the effects of a merger decision by looking for the sign of any abnormal returns around the date in which the merger and then the Commission’s decision are announced. For example, if the competitors experience positive abnormal returns when the merger is announced, the reviewer can conclude that the merger is likely to reduce competition as the expectation is that it will increase the firms’ market power.
- 2.35 Since it is possible that some information leaks out before the event happens, the literature has developed the concept of “cumulative abnormal returns”. An event window is defined, which comprises a period of time around the event date during which it is expected that relevant information has come to the market. The daily abnormal returns are then summed over this window to give a more accurate and realistic measure of the event profitability effect.
- 2.36 The main limitation of this methodology consists of the fact that not all the affected agents are firms and that not all firms are quoted on the stock market.
- 2.37 Event studies are not really ex-post evaluations, since the event (i.e. the announcement of the merger and of the Commission’s decision) typically takes place before the decision is acted upon. Nevertheless, the event study methodology allows to evaluate the effect of particular antitrust decisions, not only by measuring abnormal returns around the decision date, but rather by relating the abnormal returns around the merger’s announcement day to the abnormal returns around the decision date. Suppose, for instance that an anti-competitive merger is announced, one

⁸ See the case study attached to this report for an example of an event study that considers the firms operating in the market where the merger took place as well as the merging firms’ customers.

would expect the shares of the merging parties' competitors to experience positive abnormal returns. If the antitrust authority's decision prohibits this merger and preserves competition, one would expect to see negative abnormal returns for the competitors⁹. Hence, when a merger is cleared with conditions, such as divestitures, an event study allows to separate the effects of an unconditional merger from those of the set of remedies.

Box 2.3: Data requirement if an event study is run

The data required to apply this methodology is quite limited and easy to acquire. However, since the necessary data are the stock prices of the firms affected by the merger around the key event dates, if at least some of the key firms are not quoted on the stock market, the data does not exist and an event study cannot be run.

Hence, to carry out an event study the reviewer has to:

- 1) identify the names of the firms affected by the merger, i.e. the competitors and the customers, when these are firms - this is done on the basis of the market(s) definition;
- 2) find out which of these firms are quoted – the more the better, if not all the affected firms are quoted the event study will not reflect the overall effect of the merger, but this does not bias the estimation of the merger's effect for the quoted firms;
- 3) establish the key event dates, i.e. the date when the merger was first announced, the date of the notification to the Commission and the dates when the results of the phase 1 and phase 2 investigations were reported (or just phase 1 if the merger did not raise any concern and a more detailed investigation did not take place);
- 4) determine the size of the event window(s) that she intends to use;
- 5) collect the stock prices of all the relevant firms during the event windows around each key event day - this data can be acquired from Datastream or other similar data providers.

⁹ In particular, one would expect a -1 coefficient of the regression between the abnormal returns of the announcement day and the abnormal returns of the decision day, because all the anticompetitive rents accruing to the rivals because of the merger should be eliminated by a correct antitrust decision.

6) select the market model which she intends to use to generate the counterfactual;

7) collect the data necessary to estimate the market model, this consists of the stock prices of all the relevant firms for a three-month (or longer) period before the merger and, for each firm, a related a market index (such as the Dow Jones for American firms, the MIB for Italian firms or the DAX for German firms). These data can be purchased from Datastream or other similar data providers.

2.4.4 Surveys

- 2.38 A survey is probably the most flexible research tool that can be employed to conduct the ex-post analysis of a merger decision. A survey involves the collection of data from a representative sample of the participants to the relevant market (such as customers and competitors), through a written questionnaire or a set of interviews.
- 2.39 If properly designed and implemented, a survey can be an efficient and accurate means of obtaining qualitative and quantitative data about the actual, and potential, development of a market after a merger decision. In particular, if the merger had been prohibited, a survey allows to infer what would have happened to the market had the merger been allowed. Whenever feasible, a survey should always be carried out to add insights and help the interpretation of the results obtained through other techniques.
- 2.40 A key issue with surveys is that the response rate may be low, since there is no obligations on the market participants to answer, nor do they have any interest (while they may had it in the original ex-ante investigation) to cooperate with the Commission, as they do not derive from this process any immediate benefit. However, if the questionnaire is sent directly by the Commission, even if the assessment is performed by an independent body (or group of people), this increases the chance of receiving a response. In addition, telephone or face-to-face interviews may also be more successful as less cumbersome than a written questionnaire.
- 2.41 Surveys have also other drawbacks, which must be considered in determining the appropriate data collection technique and in interpreting the results. Survey responses are not likely to be as accurate as actual behaviour. The respondent may wish to please the researcher by

providing the kind of response that she believes the researcher is looking for or to impress the researcher by providing the “right” response. This generates a “response error” or “response bias”. The interviewer can also (inadvertently) influence the response elicited through the phraseology of the questions. This is known as “interviewer error” or “interviewer bias”.

- 2.42 The willingness or ability to reply can also pose a problem. In some cases, the information requested is considered sensitive leading to a high rate of refusal. Careful treatment of the confidentiality issue is necessary to overcome this problem.

Box 2.4: Data requirement if a survey is used

Surveys generate data more than require them. Nevertheless to design a survey, the reviewer has to collect detailed information about the target population. This allows him:

- to choose a sample, when the population is too large to be surveyed *in toto*, which accurately reflects the characteristics of the population from which it is drawn – if the sample is not selected correctly the results of the survey are not representative; and
- to correctly design the questions so that no relevant information is missed, e.g. if the members of the population/sample differ considerably the questionnaire may need to be tailored to reflect these differences.

Hence before running a survey the reviewer has to:

- 1) identify the population(s) on the basis of the definition of the relevant market(s)¹⁰;
- 2) collect information on the target population that provides a description of its size and key characteristics

¹⁰ Hence, if there are any doubts on the appropriate definition, these should be taken into account in the identification of the target population. For example, if there are doubts about the possible supply-side substitutes for a given product, a survey of the competitors may include also those firms that do not supply the relevant good, but are supposed to be able to switch their production. In this way the survey will help, not only to determine the correct boundaries of the market, but will also allow to collect a complete dataset, whichever the market definition that will prove correct.

- For example if the survey is directed at final consumers the relevant data may be age, sex, level of education, marital status, income and all those variables that may influence their buying behaviour;
 - Instead, if the survey is directed at firms, the relevant information may be turnover, number of employees, production technology employed and the geographic area they serve.
- 3) select a representative sample of the population, if this is too large for all its members to be surveyed¹¹.

2.5 Who should perform the ex-post assessment

2.43 The application of the methodology we herein propose entails a judgement of the work undertaken by the Commission's officials. Therefore, we believe that the ex-post assessment of a merger decision should not be performed by the same officials who were involved in the original decision making process. Their involvement will be necessary to overview the identification of the key arguments of their analysis, as they are best place to know what elements, inferences and facts drove their analysis and decision, but they should not be responsible of the evaluation of their own work.

2.44 Nevertheless, those who will perform the assessment have to be familiar with the MCR and with the relevant economic and econometric tools. An option could be that the ex-post assessment is performed by other officials of Commission, as a sort of peer review. An alternative option, that would guarantee that the exercise is definitely unbiased and impartial, could be to nominate one or more independent experts, such as a panel of officials of EU national competition authorities, a group of academics or an independent consultancy.

2.6 The right timeframe

2.45 The results of an ex-post assessment can be influenced by the amount of time that has elapsed since the decision. On the one hand, if only short period has gone by there may not be enough data in order to estimate correctly all effects of the merger and the estimates could be biased, as

¹¹ See Appendix II for a description of the statistical methodologies that can be employed for the selection of a representative sample.

we have discussed in section 2.4, all the empirical techniques proposed in our methodology require that the data presents some time variation. In addition, some changes in the market could take some time to materialize. For example entry by new competitors or changes in the production capacity may take time to materialise. On the other hand, with a long time frame the effects of the merger can be more difficult to identify because other events, independent from the merger, may have taken place that have altered the market conditions. In particular, in very dynamic and innovative markets, the effects of the merger are likely to be blurred by the frequent changes that take place in these markets, such as the introduction of new products or the entry or exit of firms. Hence, a balance needs to be struck between these two opposing effects.

- 2.46 Whether the nature of the possible anti-competitive effects of the merger (i.e. unilateral or coordinated effects) should not affect the timeframe of the ex-post evaluation process. The same consideration applies to the nature of the transaction (i.e. horizontal or vertical merger).
- 2.47 Indeed, with regard to the substantive assessment, the specific data requirements, including its time dimension, depend considerably on the empirical method(s) chosen, and not on the nature of the potential anti-competitive effects of the merger or of the transaction. For example, an event study can be run relatively soon after the merger, as the data required is relative to a limited number of days around the key merger dates (and to a few months before the decision to build the counterfactual). Evaluation methods and structural model require more time variation, partly to ensure the reliability of any econometric estimates and partly to capture, as discussed above all, the relevant effects of the decision.
- 2.48 With regard to the assessment of the analysis, the appropriate timeframe for the evaluation may appear to be determined by the nature of the key arguments (e.g. if the possibility of new entry was a key argument, two to three years have to be allowed to ensure that all the relevant new competitors have entered the market). However, since our methodology suggests that a complete ex-post assessment needs to evaluate not just the validity of the key arguments made by the Commission, but also their completeness, it is necessary to allow enough time to elapse to make sure that no unpredicted, but important, effects of the decision manifest itself that could affect the result of the assessment.

- 2.49 Hence, we believe that the timeframe should be set so as to capture all the possible main effects of the decision, and overall, we believe that a period of about three years from the merger should be covered in the assessment, which could be reduced to two for very dynamic and innovative markets. In our view the benefits of such a long timeframe are stronger than its drawbacks, also because concerns about anticompetitive effects are less severe in dynamic markets, where time can more easily obscure the effects of the merger. By contrast, in mature markets, where a merger's anti-competitive effects are more likely to be persistent, a longer time frame is less problematic and more useful.
- 2.50 However, since the collection of the relevant data can be rendered difficult by concerns on the part of the relevant firms about confidentiality, as some of the information can be considered commercially sensitive, we suggest to allow some more time to pass before undertaking the assessment. Hence, we believe that the best rule of thumb is to wait for about five years before undertaking an ex-post assessment and to request data only for the first three years. This should reduce the risk that the firms may be unwilling to reveal the data.

2.7 Some useful advice on data collection

- 2.51 To perform the ex-post assessment of a merger decision it is necessary to have detailed qualitative and quantitative information on how the market evolved during the years following the decision. The exact nature of the data required depends on the type of decision under exam (i.e. whether it is a prohibition, a conditional approval or an unconditional authorisation), on the key arguments on which the analysis is based and on the specific empirical technique(s) that the reviewer intends to use (though clearly the choice depends also on the data that can be obtained)¹².

2.7.1 Data sources

- 2.52 In general the data required for the ex-post assessment are often similar to the data collected during the ex-ante one, though it refers to a different time period. Hence, the same parties that provided the data for the ex-ante assessment constitute the main source for the data for the ex-post assessment.

¹² See Section 2.4 above for details on the data requirements of the empirical techniques.

- 2.53 In some cases, however, the ex-post assessment may involve the collection of data that were not available ex-ante. For instance, if a merger was cleared on the ground that post-merger entry was expected to be likely, timely and sufficient to maintain a competitive environment, the ex-post assessment will have to verify that entry indeed did occur in a timely fashion and on a sufficient scale. This will involve collecting data on the sales and market shares of the new entrant(s). Conversely data on other parties, such as potential competitors that did not enter the market, may not be necessary.
- 2.54 These two examples illustrate that the parties on which data is needed for the ex-post assessment have to be identified on a case by case basis. As a general rule, however, all parties that were involved in ex ante assessment are likely to be involved in the ex-post assessment.
- 2.55 The necessary data can be obtained from the relevant parties through a survey or a personalised request¹³, as it happens in the ex-ante evaluation. Given the high likelihood that the same parties will have to be contacted for the ex-ante evaluation of a merger and, again, for its ex-post assessment, it would be advisable that the Commission, when it sends the first request of information, informs the recipients that in five years time they could receive an additional request for similar information. By anticipating a possible further request, the Commission increases the chance that the parties will continue to collect the data and that they will be more willing to cooperate in a second review of the same merger.
- 2.56 Indeed one of the major problems that we have identified in applying the methodology herein proposed (see the assessment of the BICC-Pirelli merger decision in Part II of this study) has been in the data collection process. Since the market participants are under no legal obligation to provide information and have no special interest in cooperating (which they may had it in the original ex-ante investigation), it is important to increase their awareness of these ex-post exercises and of their general utility for the business community. More awareness should, hopefully, increase the level of cooperation. We have also found out that it helps if any information requests is sent directly by the Commission or preceded by a Commission's forewarning letter in which the aims of the assessment exercise are clearly explained, when the assessment is performed by an independent body.

¹³ Clearly when the relevant parties are final consumers the best direct source is a survey.

- 2.57 Some information can also be acquired from commercial organisations that collect data on specific industries or products (e.g. scanner data, price and market shares data)¹⁴ and this can sometimes help to overcome the cooperation issue discussed above. However, these databases can be very expensive and these costs should be taken into account by the Commission.
- 2.58 Balance-sheet data can also provide useful information, especially when evaluation methods are employed. This data can be obtained through commercial databases, such Global Vantage, Compustat, Amadeus and Datastream. Alternatively, the raw data can be collected from the internet or by directly contacting the firms. The former sources provide ready to use data, but the databases are relatively costly and have to be rented for long periods of time (generally at least one year). The latter is a very time consuming exercise and the data thus obtained come in a raw form and have to be transformed into a usable format by building some relevant variables. Finally, when the geographic market spans across several countries, the issue of comparability of data across country presents some difficulties, which are taken into account in the databases cited above.
- 2.59 In the case of event studies the data on share prices and market indices can be obtained from Datastream.

2.7.2 Confidentiality

- 2.60 The collection of the data can be rendered difficult by the fact that, in some cases, the information requested is considered commercially sensitive. Firms may, thus, be unwilling to reveal the data. This problem can be addressed by ensuring maximum confidentiality in the storage of the data and in their publication. Any report discussing the result of the ex-post assessment of a decision can indeed contain only aggregate data, as in most cases there is no need to specify information relative to individual market players. In addition, if the collection and the analysis of the data is performed by an independent body (e.g. a consultancy or a group of academics), this can even agree not to release the information on individual firms to the Commission.

¹⁴ This is the only option if one wants to run an event study, for which time series of stock exchange prices are necessary.

2.61 To reduce the firms' concern about the disclosure of information, we also suggest (as already discussed in Section 2.6) to allow one or two years to elapse after the period that will be covered by the assessment before collecting the data. This lessens the sensitivity of the data requested.

2.8 Summary

2.62 The methodology for the ex-post assessment of merger decisions that we propose in this study is articulated in two steps:

- 1) to establish whether the decision met the economic goal of merger control better than any of the available alternative decisions; and
- 2) to assess whether the analysis adopted to reach the decision was correct.

2.63 These are discussed in more details in the remainder of this study: in Chapter 3 we define the goal of merger control, in Chapter 4 we explain how to assess if a decision met this goal, while in Chapter 5 we show how to test the completeness and validity of the analysis behind this decision.

2.64 The assessment can be performed through the use of a number of empirical techniques, namely structural models, evaluation methods, event studies and surveys (more details on them can be found in Appendix II). These techniques require information on the relevant market and its players, which is often similar to the one collected during the ex-ante evaluation of the merger, but it refers to a different time period (i.e. the five years after the decision). The overall result of the exercise depends on the quality and completeness of this data. Hence, the maximum effort and care has to be put in the collection process to ensure the involvement of all the relevant parties.

3 The economic objective of merger control

3.1 In this Chapter we discuss the economic debate on the objective that competition policy, and hence merger control that is an important element of it, should pursue. Economists have not yet agreed on the appropriate answer to this question, though it seems to prevail the view that competition authorities should attempt to maximise total welfare, so as to guarantee an efficient allocation of resources. However, as we show, the EU antitrust legislation appears to be skewed towards the protection of consumers.

3.1 Competition policy and its objectives

3.2 Competition is by now almost universally recognized as a central driving force for the efficient allocation of resources, a successful long term economic performance, technological progress, and the improvement of social welfare in general. Hence, the main objective of competition policy and of the laws that implement it should be to protect this driving force and to ensure that a sufficient degree of competition, also referred to as *effective competition*, prevails in all markets.

3.3 Several jurisdictions around the world attribute additional, non-economic public interest goals to competition policy, such as the promotion of employment, regional development, inflation control, economic stability, and the protection of small and medium enterprises (see OECD 2003). Most notably in the EU the creation of a common European market is a key objective of the antitrust legislation.

3.4 In this chapter our focus will be restricted to the “economic” goal of competition policy and of the relevant legislation, i.e. the protection of competition.

3.2 What does “protecting competition” mean?

3.5 There is a long-standing debate on what “protecting competition” means, or should mean, which began with the debate that led to the enactment of the Sherman Act in the US in 1890, and is still very lively today.

3.6 The original intent of the law makers that introduced the antitrust legislation in the US was apparently to protect consumers from wealth

extortions that could arise from orchestrated practices enacted by sellers, more than to protect competition *per se* (see Lande, 1982 and Lande, 1989). However, economists have been successful in showing that an exclusive focus on the protection of consumers may be a rather costly policy for a society in terms of economic efficiency and aggregate social welfare, because it disregards any potentially negative effects it can generate on the firms' efficiency and on the welfare of other stakeholders, in particular shareholders and workers (see Williamson, 1968).

- 3.7 Social welfare can be broken down into consumer welfare and producer welfare, where the first measures the aggregate welfare of all the agents that buy and consume the goods and services sold in a specific market¹⁵, and the second measures the aggregate welfare of all the agents that contribute to produce and sell those goods and services, like shareholders, workers, and lenders. Of course, citizens are typically both consumers and producers, they buy and consume a wide range of goods and services and, at the same time, work to produce some of them, own shares of several firms, and borrow their savings to finance other firms. Because of their being consumers and producers at the same time, the effect of competition policy on their welfare is determined by the sum of its effects on both consumer and producer welfare. Hence, an effective competitive process should generate an allocation of the available resources that maximize total welfare. This is attained by pushing market prices closer to the marginal costs of production, the so-called allocative efficiency.
- 3.8 Market power, instead, tends to reduce allocative efficiency because it allows producers to increase their profits and, thus, their welfare by raising prices substantially above marginal costs. When demand is elastic, the higher price allowed by market power does not allow to realize all possible gains from trade (i.e. to maximise social welfare), as it reduces output excluding from consumption all those consumers whose valuation is above the competitive price but below the price charged by producers.
- 3.9 Although economic efficiency would be better pursued by a policy that maximizes total welfare, antitrust legislations in most countries around the world stress that protecting competition should be intended as protecting only consumer welfare (intended in this work as consumer surplus). In other words, the protection of competition is typically defined giving

¹⁵ See Chapter 4 for a more detailed explanation of what is consumer welfare.

absolute priority to the protection of consumer surplus, rather than to total surplus and economic efficiency (OECD 2003).

3.10 For example, the EC Guidelines on Article 81.3 say that

“In line with the overall objective of Article 81 to prevent anti-competitive agreements, the net effect of the agreement must at least be neutral from the point of view of those consumers directly or likely affected by the agreement” (par. 85)

3.11 However, the same Guidelines also include less unambiguous statements, like:

“The objective of Article 81 is to protect competition on the market as a means of enhancing consumer welfare and of ensuring an efficient allocation of resources” (EC Guidelines on Article 81.3, emphasis added).

3.12 Similarly, in the US soft law it can be read that

“The modern consensus is that the objective of antitrust policy is to maximize consumer welfare and promote economic efficiency through the optimal allocation of resources in a competitive market context” (US “Objectives of U.S. Antitrust Law”, in OECD 2003, emphasis added).

3.13 The last two quotes show that both EU and US legislators were also concerned with economic efficiency, although they perhaps did not fully realize that this objective and that of maximizing only consumer welfare may be in conflict with each other. Still the weight on producer surplus in practice is typically much smaller than that on consumer surplus. This is particularly evident in the legislation on merger control.

3.14 The legislation on merger control is an important instrument through which competition policy is implemented. This legislation has the peculiarity of being applied ex-ante to prevent mergers among competitors that are likely to substantially change the structure of the affected market in a way that may hinder competition. In practice, the main task of merger control legislation is to evaluate mergers in light of their likely welfare effects and to allow or disallow them on the basis of this evaluation. This task requires identifying the relevant, and often overlapping, groups of citizens (i.e. consumers, shareholders, employees, and so on) whose welfare will be affected by the merger and should be taken into account in its evaluation.

- 3.15 In case of conflicting welfare effects on different groups of citizens, the merger control system must trade-off the groups' interests against each other. The so-called "welfare standards" clarify how these trade-offs are made by the competition authority, i.e. which groups will be included in the evaluation of the effects of a merger and how to assign weights to these groups.

3.3 The welfare standards

- 3.16 In line with what we mentioned earlier regarding the general objectives of competition policy, the actual welfare standards used in the application of the merger control legislation in jurisdictions such as the US and the EU are strongly biased in favour of consumers. In the US, for example, a merger that increases market concentration might be stopped unless it is expected to deliver benefits to consumers in terms of reduced price or improved quality (US Horizontal Merger Guidelines).
- 3.17 Also in the EU, the MCR stipulates that a concentration is allowed unless it significantly impedes effective competition, and that competition is considered to be significantly impeded if the concentration harms consumers' interests. In the EC Guidelines it is clearly stated that "*the relevant benchmark in assessing efficiency is that consumers will not be worse off as a result of the merger*" (par. 79, emphasis added).
- 3.18 One could think that the very low weight attached to increases in producer welfare is due to other, indirect negative effects generated by the presence of market power. We have just discussed how it reduces allocative efficiency, but market power is also thought to have negative effects on productive efficiency. Competitive pressure keeps firms "on the tip of their toes", hence, by sheltering them from competition, market power may induce slack and waste in their operation.
- 3.19 Another reason sometimes invoked in favour of the adoption of a pure consumer welfare standard is that forceful competition induces dynamic efficiency by reinforcing firms' incentives to innovate. The underlining hypothesis is that investments in innovative activities produce positive spill-overs on other firms that are not internalized by those who invest, so that there is underinvestment in such activities. The tougher competition induced by a consumer welfare standard stimulates such investments, thus increasing total welfare.

- 3.20 The problem with this argument is that dynamic efficiency has also been invoked in defence of a softening of competition policy (meaning placing a larger weight on producer welfare). This is because, while monopolies and cartelized industries, who are sheltered from competition, could sit on their laurels and reduce investment in research and development (R &D), very strong market competition may erode the firms' market shares and their profits, their very reason to invest in the first place. Hence, following Schumpeter, many have argued that, in markets where R&D is crucial, it is necessary to adopt a more lenient competition policy, in particular towards mergers. In such industries a firm's size, the magnitude of its customer base, its expected profits and financial solidity tend to be important determinants of the firm's ability and willingness to invest in high risk R&D intensive projects with long-run returns.
- 3.21 A related argument sometimes advanced in favour of a more lenient application of competition policy in innovative industries is that allowing firms that innovate to apply higher mark-ups to can be seen as a short-term investment (in term of lost consumer surplus). Innovations tend to rapidly spill over to competitors, re-establishing competitive condition, but at the higher level of efficiency generated by the innovation, hence this investment is likely to be soon recouped. However, this dynamic efficiency argument, a delicate one in itself (see Roberts and Salop 1996; and Salop, 2005), cannot be easily applied when the innovation is obtained through a merger. The reason is that competitors may also have to merge to imitate the first innovators and re-establish even competitive conditions and the process would lead to an extremely concentrated market.
- 3.22 In the recent debate on the appropriate welfare standard for antitrust interventions (i.e. consumer surplus or total surplus) several other economic theories have emerged trying to explain why a consumer welfare standard may perform better in practice. Besanko and Spulber (1993) and Neven and Roeller (2005) have emphasized that firms typically enjoy informational and organizational advantages in lobbying competition authorities that tend to bias decisions in their favour, so that a standard favouring consumers could counterbalance the first bias and lead to more balanced and appropriate decisions, maximizing total welfare.
- 3.23 Fridolfsson (2001) and then Lyon (2002) also argue that a consumer surplus standard may be more efficient because it leads to a better selection of mergers. Their point is that firms may choose to undertake many different mergers, with different effects in terms of the resulting

increases in market power and cost efficiencies. Competition authorities can only block proposed mergers, but they cannot force alternative ones. Firms are, therefore, endowed with a kind of “agenda-setting” power. When choosing which mergers to undertake, firms attach weight only to their expected profit increases, and therefore they favour mergers that increase market power and profits with little cost efficiencies, even when alternative mergers producing much higher cost efficiencies but smaller increases in market power and profits are available (i.e. they consider producer surplus rather than total welfare). The adoption of a consumer welfare standard by the competition authorities may then lead firms to attach a higher weight to cost reductions and propose more efficient mergers that maximize total surplus, rather than just producer surplus.

- 3.24 Note that these theories promote the adoption of a consumer surplus standard, only because they believe that this is instrumental to the maximisation of total welfare, but not as the correct goal of merger control in itself.
- 3.25 Related to this debate is question of what role distributional concerns should play in antitrust decisions. Such concerns were clearly present in the intention of the founding fathers of US antitrust legislation, who wanted to protect consumers from wealth expropriation by producers’ conspiracies. Many economists would agree that there are less distortionary fiscal instruments to achieve a certain income distribution than competition policy and, therefore, that this should only be concerned with protecting competition and maximising efficiency. Other scholars, however, suggest that it is hard to see which fiscal instruments would be able to restore at a low cost the wealth distribution that prevailed before a market power increasing merger (Salop, 2005). Some economists also point out that distributional concerns are somewhat misplaced, given that nothing prevents consumers from being richer than producers, as is probably the case with some luxury goods and with large buyers in intermediate markets (e.g. Motta, 2004).
- 3.26 A further, still unsolved, issue is the treatment of competitors’ welfare. Salop (2005) notes that the adoption of a total welfare standard would require to take into account the effects of a merger on competitors’ profit. According to Salop this would make the implementation of competition policy much more complex and would clash with the claim, widely agreed

upon by economists, that antitrust is about protecting competition, not about protecting competitors¹⁶.

3.4 Conclusions

- 3.27 The discussion contained in this Chapter makes it clear that the economic and legal debate on whether a consumer welfare or a total welfare standard should be adopted in competition policy, and thus in merger control, is still unsettled, and it is likely to remain so for some time.
- 3.28 However, this does not represent a major problem for this study because our aim is not to judge whether the objective of EU merger control are correct, but to provide a methodology that allows to verify whether the Commission meets the economic objective it has set for itself. All observers agree that the Commission, despite some ambiguity in the EU antitrust legislation (see paragraph 3.10 above), adopts a consumer welfare standard, clearing mergers only if they are not likely to negatively affect consumers. Therefore, in the remainder of this study we will assume that the economic objective the Commission pursues is to protect consumer welfare.

¹⁶ However, Salop seems not to consider that by proposing total welfare as the standard for antitrust interventions, all the firm's profits and consumer welfare would be jointly considered in evaluating the possible options. Hence no antitrust decision would be based only on its consequences on competitors.

4 The assessment with respect to the economic objective

4.1 As discussed in Chapter 3, the objective of the MCR is to protect consumer welfare, hence, the first stage of the ex-post evaluation of any merger decision requires an assessment of whether consumers would have been better off had the Commission made a different decision.

4.2 To make such an assessment it is necessary:

- 1) to identify the possible alternative decisions that the Commission could have reached within the MCR legal framework; and
- 2) to measure the level of consumer welfare achieved by the actual decision relative to these counterfactuals.

4.3 In this Chapter we discuss how to identify the appropriate counterfactual(s) for any of the decisions that the Commission can adopt when it is notified a merger, we explain what determines the level of consumer welfare in a market and then discuss the techniques that can be employed to measure the net effect (i.e. relative to the counterfactual(s)) on consumer welfare of each possible decision.

4.1 The counterfactuals

4.4 In general the Commission can adopt three types of decisions when notified a merger:

- 1) it can prohibit it;
- 2) it can authorise it without conditions; or
- 3) it can authorise it with conditions.

4.5 However, the specific set of the decisions that are open to the Commission varies from case to case, because the Commission can only impose conditions that were proposed by the merging parties. Hence whether 3) is an option depends on the behaviour of the parties during the proceeding. If the parties do not propose any set of remedies the Commission has only two options: 1), or 2); whereas if the parties propose some undertakings the Commission can choose between: 1), 2), or 3).

- 4.6 Hence, when defining the possible counterfactuals against which the effect on consumers of a specific decision has to be measured, the reviewer has to consider the legal limitation on the Commission's discretion discussed above. This means that if the parties did not offer any undertaking there is *only* one possible counterfactual, because a conditional clearance could not have been legally possible. Instead, if during the proceeding the parties proposed a set of remedies, there are always, at least, two counterfactuals.
- 4.7 It is also possible that the merging parties offered more than one set of remedies. In this case each proposal would give rise to a different counterfactual. For instance, if the parties proposed two sets of remedies, set 1 and set 2, and the merger was cleared conditioned to the undertakings defined in set 2, the possible alternative decisions would have been:
- authorization without conditions;
 - authorization conditioned to the remedies defined in set 1;
 - prohibition.
- 4.8 When this situation occurs the analysis could be more complex because of the higher number of counterfactuals. However, we believe that in the majority of cases where multiple sets of remedies had been proposed, the assessment could only focus on the most comprehensive one (which is likely to be the last set proposed) and ignore all the previous ones, without affecting the result of the analysis. Only if these sets contained very different undertakings should we consider all of them. Hence, in the rest of this report we shall only consider the case when one set of undertaking was proposed, and we will assume that only two counterfactuals are possible when the parties offered remedies. Anyway the methodology herein proposed can easily be extended to a more complex case with several sets of undertakings.
- 4.9 To summarise what just discussed, the following table identifies the counterfactuals for each type of decision the Commission can take, depending on the behaviour of the parties. To each set of counterfactuals corresponds a case, from A to E, which will be discussed in section 4.3 together with suggestions on how to perform the ex-post assessment.

Table 4.1: The relevant counterfactuals

COMMISSION'S DECISION	PARTIES' BEHAVIOUR	COUNTERFACTUALS	CASE
AUTHORIZATION WITHOUT CONDITIONS	NO REMEDIES OFFERED	PROHIBITION	A
	REMEDIES OFFERED ¹⁷	PROHIBITION ¹⁸	B
AUTHORIZATION WITH CONDITIONS	NO REMEDIES OFFERED	<i>THIS CASE IS NOT LEGALLY POSSIBLE</i>	-
	REMEDIES OFFERED	PROHIBITION AUTHORIZATION WITHOUT CONDITIONS	C
PROHIBITION	NO REMEDIES OFFERED	AUTHORIZATION WITHOUT CONDITIONS	D
	REMEDIES OFFERED	AUTHORIZATION WITHOUT CONDITIONS AUTHORIZATION WITH CONDITIONS	E

4.2 Consumer welfare

4.10 Once the relevant counterfactuals have been defined, the assessment of the decision with respect to the ultimate economic goal requires a comparison of the level of consumer welfare that resulted from the actual decision with the one that would have been reached with each of the relevant alternatives.

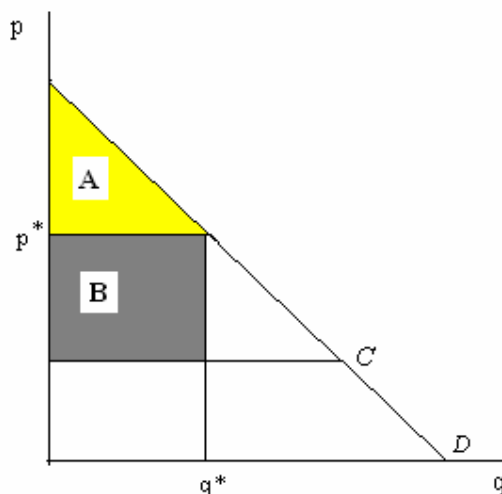
4.11 Consumer welfare (also referred to as consumer surplus) is the difference between what consumers are willing to pay for each unit of the products they acquire (i.e. the consumers' willingness to pay) and what they

¹⁷ The case in which the parties offer a set of remedies and the merger is cleared without conditions is unlikely, but legally possible.

¹⁸ Please refer to case B below (section 4.3.3) to understand why the authorisation with conditions is not a relevant counterfactual.

actually pay. Figure 4.1 shows consumer welfare in a generic market. This is the area below the demand curve up to the quantity consumed, less the expenditure incurred by the consumers to purchase that quantity. Consumer welfare is marked as A, while the expenditure is marked as B.

Figure 4.1: Consumer welfare



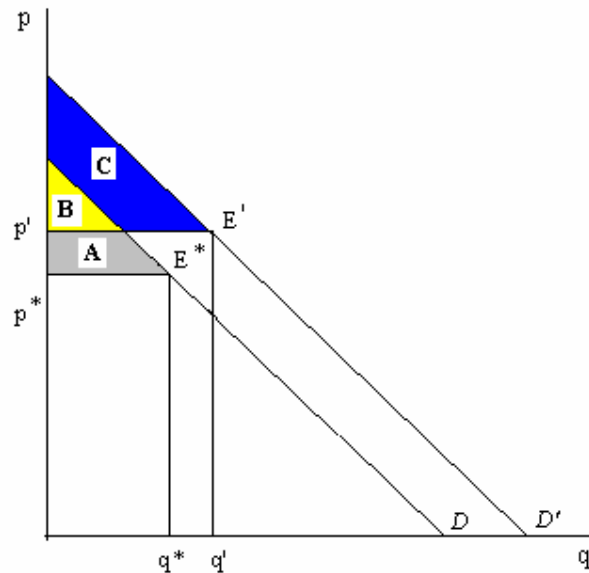
- 4.12 From the above figure it is clear that the level of consumer welfare depends on the following market variables:
- 1) the prices at which the goods and services are exchanged,
 - 2) the volumes of these transactions, and
 - 3) the quality and variety of the goods and services and the consumers preferences (which determine the position of the demand curve).
- 4.13 Hence, to understand how consumer welfare has changed following a Commission's decision it is necessary to analyse how these market variables have evolved since the decision has been acted upon (or would have evolved if we are considering a counterfactual).
- 4.14 In general consumer welfare increases when: the prices for the relevant goods or services decrease; total output raises; and the quality of the

goods or services improves and/or their variety increases, thereby augmenting the consumers' willingness to pay¹⁹.

- 4.15 It should be highlighted that often, in considering the effects of firms' market power on consumers, too much attention is placed on price increases. This is incorrect because consumers may be better off even if they have to pay a higher price for some goods. If, for example, the quality of the goods has improved or the variety on offer has widened, the consumers' willingness to pay may raise and offset the price increase or even make consumers better off. Figure 4.2 below shows a simultaneous shift in the demand curve due to an improvement in the goods on offer and a price increase (due to an increase in market power) that lead to an overall increase in consumer welfare.
- 4.16 Consumer welfare, when the demand curve was D, was given by the area under the demand curve D up to the price p^* (i.e. the sum of A and B). After the shift of the demand curve to D', the consumers' willingness to pay has gone up. Simultaneously also the price has risen (from p^* to p') because of the market power gained by the firm stemming from the merger. Consumer welfare in the new equilibrium E' is now represented by the area under the new demand curve D' up to the price p' (i.e. the sum of B and C). The net gain in consumer welfare is given by the difference between area C (i.e. the gain generated by the higher willingness to pay) and area A (i.e. the loss due to the higher level of prices).

¹⁹ It should be highlighted that an increase in variety does not always increase the willingness to pay (and hence consumer welfare). Indeed if more variety implies that a new product is offered which is vertically differentiated from those already on the market and whose quality is inferior, the effect on the willingness to pay depends on whether there are asymmetries of information between buyers and sellers. If consumers can observe the quality of the existing products, the presence of a low quality good does not affect their willingness to pay for the high quality good, while the availability of the low quality product allows consumers whose willingness to pay is below the price of the high quality good, but above that of the low quality one to be in the market. In this case more variety leads to an increase in consumer welfare. However, if there are asymmetries of information, so that the producers know the true quality of their products, but buyers do not, the introduction of a low quality product in the market may have the effect of reducing the expected value of any purchase. This determines a reduction in the consumers' willingness to pay and, hence, in the level of consumer welfare.

Figure 4.2: How a change in price and a shift in demand affect consumer welfare



- 4.17 The above example shows that all the changes in the three market variables have to be measured before it is possible to reach a conclusion on the overall variation in consumer welfare engendered by a merger decision.
- 4.18 However, as already discussed, the determination of how consumer welfare has changed since the decision was made is not sufficient to reach a conclusion on the appropriateness of the Commission's decision with respect to its ultimate economic goal. Indeed, if we find that consumer welfare has improved after the decision, we could still argue that consumers would have been even better off had the decision been different. Similarly, if we find that consumers are worse off, we could argue that this happened for reasons other than the decision and that consumer welfare would not have been higher even if the Commission adopted a different one. In other words time-consequentiality is different from causation. Hence, to perform a complete assessment of a decision with respect to its ultimate economic goal we need to understand what would have happened had the Commission adopted an alternative decision.

4.3 Did the decision reach its goal of protecting consumer welfare?

4.19 The rest of this Chapter is devoted to a detailed discussion of how to assess the change in consumer welfare caused by a decision relative to its counterfactual(s). We examine one by one the five possible combinations of types of decision and behaviours of the merging parties identified in Table 4.1 and provide some suggestions on how best to address each case.

4.3.1 CASE A: Authorization without conditions when no remedies were offered

4.20 As previously discussed, the first step to assess a decision is to identify the relevant counterfactuals. From Table 4.1 we can see that when the Commission approved a merger and no remedies were proposed by the parties, the only one other decision it could have taken was to prohibit the merger. Hence, the assessment of such a decision relative to its ultimate goal requires an evaluation of the level of consumer welfare relative to the one it would have reached without the merger.

4.21 Hence, the aim of the substantive assessment is to understand whether the changes in the key variables (price, quantities and quality) that took place after the decision have benefited consumers and if they have been caused by the merger.

4.22 We now consider one by one the most likely market scenarios that could follow an authorisation and we explain what hypotheses need to be tested to reach a conclusion on the net effect of the decision on consumer welfare. In the following scenario, to simplify the discussion, we assume that any change in competition that may take place is endogenous, i.e. is caused by the merger. However, this may not always be the case and it is also necessary to test this hypothesis. Hence, this section ends with a discussion of how to perform such a test.

Scenario A.1: Prices have diminished and aggregate output has increased

4.23 This scenario may occur because:

- (1) the market has become more competitive so that the firms, which previously were able to charge prices above the competitive level, are forced to lower them;
- (2) the production costs have diminished, either because the input costs have fallen or because firms have become more efficient;
- (3) the production costs have diminished and the market has become more competitive (i.e. (1) plus (2)); or
- (4) the production costs have diminished (i.e. (2)), but the market has become less competitive.

4.24 In this scenario we can assume that consumers are better off (for the reasons previously discussed). However, before we can conclude that the Commission's decision was appropriate, we need to make sure that this scenario has not been produced by (4), i.e. where the market has become less competitive and the simultaneous price reduction and the output expansion have been caused by a cost reduction not due to the merger.

4.25 In this latter case the increase in consumer welfare would have been caused by an event that is independent from the merger, while the merger would have rendered the market less competitive, thus making consumers worse off. Even if after the decision consumers were better off, the change in consumer welfare caused only by the merger would have been negative. Hence, if the Commission had prohibited the merger, the cost reduction would have materialised anyway, but, without the reduction in competition, the level of consumer welfare would have been higher.

4.26 From this follows that to assess the effects that could be attributed only to the decision we should start by verifying if the production costs have effectively gone down. If they have not we can reasonably claim that the price reduction and the output expansion are due to a more competitive market (i.e. that (1) is the correct hypothesis).

4.27 To find out whether the production costs have decreased the best starting point is to look at the firms' cost function pre and post-merger. This can be done in a variety of ways depending on the available data:

- by calculating the merging firms' production costs before and after the merger;

- by estimating the merging firms' cost functions before and after the merger²⁰;
 - by assessing the price-cost margins of the merging firms before and after the merger;
 - through a survey of the market players.
- 4.28 The first option would be the best way to address the question, but it is possible only if reliable and complete data on the firms' production costs is available. Moreover, it can be difficult to calculate just the cost of the relevant products if the merging firms are multi-products, as the concentration may have affected only part of their production function.
- 4.29 If the detailed cost information is not available, an alternative approach consists in estimating the merging firms' cost functions. However, the estimation of the post-merger cost function can be difficult because it requires a large cross-section of data (e.g. different plants data) or a panel, since a simple time series would not be long enough to allow a correct identification of the parameters of interest.
- 4.30 The third option is to calculate the price-cost margins of the merging firms before and after the merger by means of a full structural model that estimates the demand and supply functions of the relevant markets. From the size of these margins is possible to derive information on cost changes.
- 4.31 A survey of the market players (merging firms, competitors, and possibly suppliers and customers) could provide a useful support and may be the only feasible option if the quality and amount of data available do not allow applying any of the techniques just discussed.
- 4.32 If at the end of this exercise we find out that the firms have experienced non-trivial cost savings, we need to distinguish among the other possible explanations. If hypotheses 2) or 3) were correct, we could claim that the decision was appropriate, independently of whether the cost reduction was exogenous or not, because the merger would not have led to a reduction of consumer welfare. However, if hypothesis 4) was the correct answer we could reach a positive conclusion on the decision only if the cost reduction was endogenous, since it would mean that the merger generated

²⁰ More details on how to perform such estimations can be found in: Baumol, W., J. P. Panser, and R. Willig (1982); Evans, D., and J. Heckman (1983); Evans, D. and J. Heckman (1984); Ivaldi, M., and G. McCullough (2005), Röller, L-H. (1990); and Reiss, Peter C. and Frank Wolak (2005).

efficiencies that were sufficient to offset the possible negative consequences of a lower degree of competition.

- 4.33 Hence, if there has been a cost reduction, the next step is to understand whether this reduction has been determined by efficiency gains produced by the merger or by exogenous factors.
- 4.34 In order to answer this question it is necessary to consider if and how input prices have changed. A reduction in production costs which is coupled with a fall in input prices suggests that the savings enjoyed by the merging firms are due to exogenous factors. The reverse could indicate the presence of efficiency gains. Similarly a major technological change that has affected the whole market could have reduced the amount of inputs per unit of output thus leading to a reduction in total costs.
- 4.35 Information on the pattern of input prices and on technological innovation could be obtained through a survey of the market players. Producers, and sometimes even consumers, are well aware of changes in these key production variables and, if cooperative, can be a very good source of qualitative and quantitative data.
- 4.36 Another option is to calculate the pre and post-merger price-cost margins for the merging firms (which one may have already done see paragraph 4.27 above) and their competitors, by means of a structural model. If the efficiency gains were caused by the merger, the reviewer should observe a larger change in the price-cost margin of the merging firms' relative to the margin of their competitors, as the merger should affect the prices of all the firms, but only the costs of the merging ones.
- 4.37 The answer may also be reached through a policy evaluation method, if it is possible to find a good control group to which the merging firms can be compared and if information about the costs of production are available. If only the merging firms have lower costs, while the level of the production costs of the firms in the control group is unchanged (from the pre-merger level), it can be concluded that the merger brought efficiency gains.

Scenario A.2: Prices have not decreased but the overall output has increased

- 4.38 In this scenario consumers are better off, as despite the price increase they are buying a higher quantity of the goods. However, this is not sufficient to conclude that the approval of the merger was the appropriate

decision. Before reaching such a conclusion, we must check whether the output increase might have been limited by a simultaneous reduction in the level of competition, i.e. we need to assess whether the output increase is lower, equivalent or higher than the one that would have occurred if the degree of competition in the market had remained unchanged after the merger. If the output is higher or equal, we can conclude that the Commission's decision met its goal, while if total output was lower we need to understand better what happened in the market.

- 4.39 An output increase when prices are constant, or higher, can occur only if the demand for the relevant product(s) expands. This can be determined by an exogenous change in the consumers' preferences or by an endogenous improvement in the quality or the variety of the products. If the demand shift was due to the merger, the decision would have been appropriate, because the efficiencies generated by the merger more than off-set the negative effect of the increased market power. However, if the cause was unrelated to the merger, then it is clear that consumer welfare would have been higher if the merger had been prohibited.
- 4.40 To assess if the output increase is lower, equivalent or higher than the one that would have occurred if the merger had not taken place, we have options similar to those discussed for the previous scenario.
- 4.41 When data on prices and quantities sold are available at firm level, the best option is to compare the sales of the merging firms and those of the competitors: if prices have remained constant, or have changed by the same amount for all the firms, an increase only in the demand for the merging firms' products would suggest that their quality has improved relative to that of their competitors.
- 4.42 Another option is to employ the structural model technique to estimate the (residual) demand and supply curves. If the reviewer used post merger data for the demand function and pre-merger data for the supply schedule, she could simulate what would have been the output had the merger not occurred and determine if the demand change has been caused by the merger. This, of course, is valid under the assumption that the merger has not produced any efficiency gain and that the conduct of all involved firms (i.e. merging and rival firms) has not changed following the merger.

- 4.43 A survey of the market players could provide a useful support and may be the only feasible option if the quality and amount of data available does not allow applying any of the techniques just discussed.

Scenario A.3: Prices have increased and output has decreased

- 4.44 In this scenario we can assume that consumers are worse off, because with the same expenditure they can buy a lower quantity of the relevant products. This scenario may occur if:

- (1) the market has become less competitive;
- (2) the production costs have risen; or
- (3) the production costs have risen and the market has become less competitive (i.e. (1) plus (2)).

- 4.45 To assess the appropriateness of the Commission's decision we need to test which of these hypotheses is correct. The best starting point is to analyse the costs of production. If no increase has occurred after the merger, the only possible explanation behind the price change is a reduction in the level of competition (hypothesis (1)) and we can conclude that the Commission's decision did not meet its goal because consumers are worse off.

- 4.46 Instead, if we find that production costs have increased since the merger took place, we need to distinguish between hypotheses (2) and (3). If we conclude that the correct explanation for this scenario is that the production costs have increased and the market has become less competitive, we can assert that the decision is inappropriate. The reduction in competition caused by the merger would indeed be partially responsible for the price rise that has made consumers worse off.

- 4.47 Instead, if the price increase and the output reduction are caused only by a change in costs, then the decision met its goal. This conclusion does not depend on the nature of the cause behind the cost change (i.e. whether it was exogenous or endogenous). Indeed, in the former case the fact that consumers are now worse off is not due to the decision, while in the latter, even though the reduction in consumer welfare has been caused by the merger, the Commission did not have the power to block it on the grounds that it created cost inefficiencies²¹.

²¹ Despite the fact that its main objective is to protect consumer welfare, the MCR allows the Commission to approve a merger on the ground that it creates cost and demand

- 4.48 To ascertain if costs have changed the available options are similar to those discussed in the paragraph 4.27 above:
- to calculate the merging firms' cost function before and after the merger, if detailed data on their production costs is available;
 - to estimate their pre and post-merger cost functions, if direct cost information are not available;
 - to assess their price-cost margins through a structural model, if there are enough information to build and estimate one;
 - to use an evaluation method, if it is possible to define a valid control group;
 - to run a survey of the market players, which could provide a useful support to any of the above and could be the only feasible option if the quality and amount of data available did not allow applying any of the techniques just discussed.

Exogenous changes in the level of competition

4.49 In discussing the above three scenarios we have argued that if after the approval decision the market becomes more competitive, the reviewer can conclude that the Commission's decision was appropriate and if it becomes less competitive, the reviewer can conclude that the Commission's decision was inappropriate, unless the merger engendered cost and/or demand efficiencies that could off-set the negative welfare effect of the reduction in competition.

4.50 However, these conclusions are warranted only if the reviewer can exclude that the change in the degree of competition was due to exogenous factors. It is indeed possible that this change has not been caused by the decision, but by a simultaneous and unrelated event. For example, a change in regulation, simultaneous to the merger, could have reduced the barriers to entry, or lowered the switching costs, thus making the market more competitive. In this case it would be wrong to attribute the rise in consumer welfare due to the more competitive market environment to the merger and this increase should not be factored in the analysis of the merger's effects. Similarly, some firms may have left the market because of a strong drop in demand, making the market less competitive.

efficiencies, but not to block it if it generates inefficiencies. The Commission can only block a merger if there are serious concerns that it may impede effective competition.

If the drop in demand is the consequence of exogenous factors, its effects should not be attributed to the merger.

- 4.51 Hence, before reaching a final conclusion on the Commission's decision we also need to test the hypothesis that the change in the degree of competition may not have been caused by the merger.
- 4.52 To verify the causes of the change in competition the reviewer has to carefully examine the evolution of the market after the decision and identify whether there have been any significant changes in its structure which are not related to the merger. In these circumstances, a survey is the best means to shed some light on this point, as it elicits information from those who have the best knowledge of the market. Competitors and/or main customers are aware of the changes that have taken place in the market following the merger and, if well-prodded and cooperative, can provide quantitative and qualitative data on costs, prices and demand patterns, as well as on entry and exit and other structural changes.
- 4.53 Another option is to test which kind of equilibrium concept is consistent with the pre and post-merger data by means of non-nested tests (see Appendix II for more details on this type of tests). However, it would be almost impossible to test whether this change in conduct is due to the merger or to other factors.
- 4.54 An event study could also be a useful tool. The reaction of the financial markets can provide useful information on the effects that rational and well-informed agents would expect to derive from the merger. If the announcement of the merger caused an increase in the stock prices (relative to the level that would have prevailed without that piece of news) both of the merging firms and of the competitors, it is likely that the merger increased market power and reduced competition. Whereas, if only the merging firms saw a surge in their stock prices (and/or the competitors experienced a fall), then it is likely that the merger generated some efficiencies (in terms of costs and/or quality).
- 4.55 If the consumers are firms the event study, by revealing if their stock prices increased or fell, allows also to determine what were their expectations on the effect of the merger on competition.
- 4.56 In some cases it is possible that the change in degree of competition is a combination of the effects of the merger and of other unrelated

phenomena. In this case it is necessary to ascertain what is the sign and the magnitude of the change in competition produced by the merger because only this should be taken into account when assessing the variation that the merger decision, and only the decision, caused on consumer welfare.

Exogenous change in the level of demand

- 4.57 In the cases discussed above we have assumed that any change in the level of output was due to a change in prices, which could have been caused either by a change in the level of cost or in the degree of competition. However, there is a further possibility that should also be considered: an exogenous change in demand. This could be due to a modification in the consumers' preferences or in their income and it would cause a shift in the demand curve, so that at the same price a different (lower or higher) level of output is sold. For example, in the case examined in Part II of this study, output declines, even though there is a fall in prices, because, among other effects, there is a contraction in demand due to a consolidation and rationalization process in the industry in which the consumers (which are firms) operate.
- 4.58 Hence, before reaching a final conclusion on the Commission's decision we also need to test the hypothesis that the change in the level of output may have not been caused by the merger, but by an exogenous shift in the demand curve. In this latter case a change in welfare due to a modification in the willingness to pay cannot be considered as an effect of the decision.
- 4.59 In addition, since the change in output may be partly due to the merger and partly to other unrelated phenomena, the reviewer has to identify the sign and the magnitude of the change caused by the decision because only this should be taken into account in its assessment.
- 4.60 To verify the causes of the change in the level of output, it is important to understand if there have been changes in the behaviour of the customers which are not related to the merger. In these circumstances, a survey can be very useful, as it elicits information from those who have the best knowledge of the market, i.e. the customers themselves or the producers..
- 4.61 A structural model could also help to assess if the demand function has changed compared to the pre-merger period. If the reviewer used post merger data for the demand function and pre-merger data for the supply

schedule, she could simulate what would have been the output had the merger not occurred and determine if the demand change has been caused by the merger. This, of course, is valid under the assumption that the merger has not altered the supply function.

A short summary of case A

- 4.62 When the Commission has allowed a merger and no remedies were proposed by the parties, the first step in the substantive assessment consists in verifying whether consumers are better off after the merger. This can be derived from the changes that have taken place in the prices charged and the quantities sold. Nevertheless, the determination of how consumer welfare has changed since the decision was made is not sufficient to reach a conclusion on its appropriateness. It simply allows to build a hypothesis, which, then, has to be tested against alternative hypotheses.
- 4.63 The next step consists in building these alternative hypotheses and testing them. This requires understanding the possible causes behind that market outcome (i.e. the change in the key variables) and checking if the identified cause(s) has been induced by the merger or by exogenous factors.

Table 4.2 below lists the key possible hypotheses when a merger has been authorised without conditions, and for each one summarises the techniques that can be used to test it.

Table 4.2: How to test the key hypotheses when a merger has been authorised without conditions

HYPOTHESIS: A CHANGE IN PRODUCTION COSTS CAN EXPLAIN THE MARKET OUTCOME	
QUESTION TO BE ANSWERED: HAS SUCH A CHANGE IN THE PRODUCTION COSTS TAKEN PLACE?	POSSIBLE METHODOLOGIES: CALCULATE AND COMPARE ACTUAL COSTS OF THE MERGING FIRMS BEFORE AND AFTER THE MERGER ESTIMATE AND COMPARE COST FUNCTIONS OF MERGING FIRMS BEFORE AND AFTER THE MERGER ESTIMATE AND COMPARE PRICE-COST MARGINS OF MERGING FIRMS BEFORE AND

AFTER MERGER BY MEANS OF A FULL
STRUCTURAL MODEL
SURVEY OF MARKET PLAYERS

HYPOTHESIS: THE CHANGE IN PRODUCTION COSTS IS ENDOGENOUS

QUESTION TO BE

ANSWERED:

HAVE ONLY THE COSTS OF
THE MERGING FIRMS
CHANGED?

POSSIBLE METHODOLOGIES:

SURVEY OF MARKET PLAYERS TO FIND
OUT IF THE COST CHANGE AFFECTED THE
WHOLE MARKET

ESTIMATE AND COMPARE PRICE-COST
MARGINS OF THE MERGING FIRMS AND
THEIR COMPETITORS BY MEANS OF A
STRUCTURAL MODEL

COMPARE THE CHANGE IN COSTS OF THE
MERGING FIRMS TO THOSE OF A CONTROL
GROUP

**HYPOTHESIS: ENDOGENOUS CHANGE IN DEGREE OF COMPETITION CAN
EXPLAIN THE OUTCOME**

QUESTION TO BE

ANSWERED:

IS THE CHANGE A
CONSEQUENCE OF THE
MERGER?

POSSIBLE METHODOLOGIES:

SURVEY THE MARKET PLAYERS TO FIND
OUT ABOUT MAJOR STRUCTURAL
CHANGES

EVALUATION OF THE MODE OF
COMPETITION BY MEANS OF NON NESTED
TESTS

EVENT STUDY ON MARKET PLAYERS'
STOCK PRICES

**HYPOTHESIS: ENDOGENOUS SHIFT IN DEMAND CURVE CAN EXPLAIN
THE MARKET OUTCOME**

QUESTION TO BE

ANSWERED:

IS THE SHIFT DUE TO AN
IMPROVEMENT IN
QUALITY/VARIETY OF
PRODUCT CAUSED BY THE
MERGER?

POSSIBLE METHODOLOGIES:

COMPARE POST-MERGER PRICES AND
SALES OF THE MERGING PARTIES ENTITY
AND COMPETITORS

BUILD A STRUCTURAL MODEL, AND
ESTIMATE PRE-MERGER SUPPLY AND
POST-MERGER DEMAND TO COMPARE
ESTIMATED OUTPUT WITH ACTUAL ONE (IF

THE MERGER HAS NOT PRODUCED ANY EFFICIENCY GAIN AND THE CONDUCT OF THE FIRMS HAS NOT CHANGED FOLLOWING THE MERGER).
SURVEY THE MARKET PLAYERS TO FIND OUT ABOUT CHANGES IN DEMAND PATTERNS AND IN QUALITY OF PRODUCTS

4.3.2 CASE B: Authorization without conditions when remedies were offered

- 4.64 As we have already argued, the case in which a merger is cleared without conditions and the parties offered a set of remedies is unlikely, but possible.
- 4.65 In these circumstances, it would appear that there are two possible counterfactuals against which this decision should be assessed:
- a prohibition of the merger; and
 - an authorization with the proposed conditions.
- 4.66 However, we have to assess whether the approval decision is appropriate *within the legal framework* set in the MCR. In this framework a conditional clearance encompasses a sequence of two decisions: the first one is the prohibition of the merger as initially notified by the parties, and the second is the authorization of the merger as modified by the undertakings offered by the parties. Hence, since an authorization with conditions would be legally possible only if the unconditional clearance had been considered inappropriate relative to the alternative of prohibiting the merger, we first need to test whether this decision was appropriate.
- 4.67 Whichever is the result of this assessment, this will be the outcome of the overall assessment of the decision. Indeed, if we were to find that the decision to allow the unconditional merger was inappropriate, it would not be necessary to test if the conditional approval was correct, as we would have already answered the question that motivated our analysis (i.e. we would have ascertained that the unconditional clearance did not protect consumer welfare)²². If, instead, we were to conclude that the decision

²² If we did consider also the conditional clearance, we would be able to say which decision would have been the best from the consumers' point of view; but the aim of the

was appropriate, it would be irrelevant to test it against the conditional clearance because this would not have been legally possible²³.

- 4.68 Hence, we can conclude that case B is equivalent to case A, because the only relevant counterfactual is the merger prohibition, and the methodology that we have suggested in the previous section applies to this case as well.

4.3.3 CASE C: Authorization with conditions when remedies were offered

- 4.69 As pointed out in the previous section a conditional clearance corresponds to a sequence of two decisions, where the first is the prohibition of the merger as initially notified, and the second is the authorization of the merger as modified by the undertakings proposed by the parties.
- 4.70 Hence, in this case we need to consider the structure of the legal procedure and, differently from case B, we have to assess the appropriateness of both decisions starting backward from the second decision, i.e. the Commission's decision to approve the merger as modified by the remedies offered by the parties.
- 4.71 This decision can be tested against the only available counterfactual: a prohibition. This assessment is equal to what would be done in Case A, hence the logic and the tools described for that case apply here too. Whether we then move to the assessment of the first decision, depends on the conclusion we reached on the second one.

Scenario C.1: The second decision was inappropriate

- 4.72 Suppose that we find out that consumers would have been better off if the Commission had prohibited the merger as modified by the proposed remedies. Then the second decision would be inappropriate and this would imply that the overall decision was inappropriate and we do not have to assess the first one.

present exercise is just to ascertain if the decision made by the Commission decreased or not consumer welfare and not to rank the possible options.

²³ As just mentioned, the conditional clearance would have been an option open to the Commission only if it had previously prohibited the unconditional merger.

Scenario C.2: The second decision was appropriate

- 4.73 Suppose that the outcome of our assessment is that the authorization of the merger as modified by the proposed undertakings made consumers better off (or not worse off). Then to reach a conclusion on the overall legal decision we would have to assess whether the prohibition of the initial merger was appropriate, because if it was not, the Commission would have made an inappropriate decision in rejecting the original merger and imposing the conditions²⁴.
- 4.74 Hence, we have to investigate what would have been the effects on consumer welfare had the merger been approved without imposing the specific set of remedies proposed by the parties. This is equivalent to asking whether this set of remedies was necessary to remove the anticompetitive effects that otherwise would have been caused by the merger²⁵.
- 4.75 It is not possible to identify a general methodology for this kind of investigation because the appropriate one depends on the kind of competitive concern that was raised during the proceeding and on the type of remedies imposed. A useful option in most cases is to simulate through a structural model what would have happened if the merger had been allowed without the remedies.
- 4.76 However, a structural model would be less appropriate to generate counterfactuals that allowed assessing the effects of a set of remedies, especially if these were behavioural. For this purpose the best available methodology is an event study that revealed the stock market's reactions, first when the merger was announced and then when the Commission revealed the remedies it intended to impose, thus allowing to separate the two sets of effects. Any abnormal returns registered when first news was

²⁴ This would be true even if consumer welfare was higher with the merger with conditions than with the one without, because there would be still an error given the order in which the Commission has to consider the parties' proposal.

²⁵ It should be highlighted that it is possible that the merger, while reducing the level of competition, generates efficiencies that more than off-set the negative effect on competition and that the remedies allow all these efficiencies to pass on to the consumers, whereas without them the pass-through would be limited and consumers less well off. However, if the Commission had approved the conditional merger, this would have been an inappropriate decision, even though from the point of view of consumer welfare the conditional merger is better than the unconditional one. This is because from a legal point of view the Commission cannot prohibit a merger that makes consumers better off even if it could allow a merger that generates an even higher level of consumer welfare.

released would give useful information on the effects on the market of an unconditional merger, whereas any abnormal returns that followed the Commission's decision would be reflect the market's expectations about the effect of the remedies.

4.3.4 CASE D: Prohibition when no remedies were offered

- 4.77 If the Commission prohibited the merger and the parties did not offer any set of remedies to meet the competitive concerns raised by the Commission the only possible counterfactual is an unconditional authorization. Hence, in this case we should compare the market evolution after the decision with what would have happened had the Commission authorized the merger. The prohibition should be considered an inappropriate decision if the level of consumer welfare had been higher, or equivalent, to one that would have been achieved with the merger.
- 4.78 Assessing a prohibition is much more complex than assessing an authorization, because the evolution of the market after the decision does not help in forming a *prima facie* hypothesis that can be tested. The approach that we have proposed to assess the appropriateness of a clearance (case A) consists in trying to ascertain whether the merger under consideration is the main cause behind the evolution of the market. This means that the assessment consists of testing whether there is a causal relationship between two events: the evolution of the market and the merger. This method cannot be applied when the Commission prohibits a merger, because the second event has not happened and, therefore, there is no actual causal link that can be tested. Hence, in this case it is only possible to define a potential causal relationship between the (potential) merger and its (potential) effects on the market and test it. And this is a completely different problem from the one considered previously.
- 4.79 One option to address this problem is to determine what the potential causal relationship could be by relying on the perception of those agents that had to form, or could have formed, some expectations on how the market would have evolved if the merger had occurred.
- 4.80 Stock market investors are among those agents that had to form a view of the effects of the merger at the time of its announcement and act on this view, even if this had not yet occurred and may not occur. Hence an event study on stock prices of the merging firms and its competitors (and in some cases also its customers) around the date when the merger was

announced could reveal the expectations of the effects of the mergers. Further information could also be obtained by checking the stock market reactions when the Commission announces the prohibition.

- 4.81 Also all those markets in which future contracts are traded contains agents who have to form a view and act when an event is announced. Therefore, also the prices of future contracts could be used to derive their expectations on the likely relationship between the still-to-happen merger and still-to-come effect on the market. A key condition for these prices to be used for an event study is that the market in which these futures are traded is large and liquid, so that the reviewer can reasonably assume that prices adjust quickly to changes in expectations.
- 4.82 In addition, there are agents that may have formed a view of the effects of the merger because they have a thorough knowledge of the relevant market and because they may have been affected by the merger if it happened (e.g. the competitors and customers of the potentially merging firms). The researcher could try to elicit their expectations through well designed surveys.
- 4.83 Relying on the price of stocks and futures has the advantage that this data reflects the actual behaviour of the investors based on their expectations of the effects of the merger. The data obtained through surveys, which are simply elicited opinions, are, instead, more open to biases. When possible the best approach would be to use both methods.
- 4.84 Policy evaluation methods might also be employed in this scenario, but only if another market with very similar characteristics can be found, where a merger took place. This is a very rare occurrence. Yet, when it happens, the reviewer can measure the effect of the merger in this market and use it to infer which would have been the effect of the blocked merger, had this been approved. In other words, the reviewer could assume that the merger would have had the same impact that it had in the “control” market.
- 4.85 Another possible option could be to estimate a structural model and use it to simulate the effects of the prohibited merger. This exercise would be very similar to *ex-ante* simulations that are often performed by competition authorities when deciding on a proposed merger. The only difference with respect to the *ex-ante* analysis is that, in this case, the actual *ex-post* data on the demand side would be available. This would improve the reliability

of the results of the simulations because it would remove the uncertainty generated by possible exogenous changes in demand.

4.3.5 CASE E: Prohibition when remedies were offered

- 4.86 This case is similar to the one just discussed and the same considerations apply. However, this case is more complex because there exist another possible counterfactual: the authorisation of the merger conditional to the remedies proposed by the parties.
- 4.87 As discussed in Case B and C, when the parties propose remedies the legal process is composed of two separate decisions: whether to allow the unconditional merger and, if the latter is prohibited, whether to allow the merger subject to these remedies. Hence, to reach a conclusion on whether the Commission met its goal it is necessary to assess both decisions, one at the time, starting from the latter one.

Scenario E.1: The second decision was inappropriate

- 4.88 If the prohibition of the conditional merger made consumers worse off then we could conclude that the overall decision was inappropriate and would not have to consider also the first decision.

Scenario E.2: The second decision was appropriate

- 4.89 If we conclude that the prohibition was appropriate, then, to complete the substantive assessment on the overall legal decision, we would also have to consider the first decision and verify whether the Commission had been correct in prohibiting the unconditional merger, because if it was not, then the overall decision would have been inappropriate.
- 4.90 To perform both assessments we face the difficulties discussed under case D, i.e. that we do not have a causal relationship that we can test and thus it is necessary to build a potential one, but this case is even more complex because it may be necessary to assess both the possible effects of a conditional merger and an unconditional merger. Anyhow the empirical methodologies that can be used are those discussed in the previous section on Case D. The best ones are probably event studies and surveys, but it is also possible to simulate the occurrence of the merger(s) through a structural model (though this is much more difficult when there are remedies). A policy evaluation method may be employed if an appropriate control market can be found, but this is unlikely for

unconditional remedies and almost impossible for conditional ones (as also the remedies would have to be very similar).

4.91 Table 4.3 below summarises the methodologies that can be used in Case D and Case E.

Table 4.3: Methodologies that can be used to assess a prohibition

Type of technique	When it can be used	How does it work
a) The prohibition relates to an unconditional merger		
Surveys	Can always be used	Relies on the expectations of well-informed market players (competitors, suppliers, customers)
Event studies	Can be used provided firms are quoted on stock market	Relies on the expectation formed by stock market when merger was announced
Structural models	Can be used if all necessary data is available	Simulates effects of the merger using ex-ante data on supply and ex-post data on demand
Policy evaluation methods	Can be used only in those rare cases where a valid control market can be found	Derives conclusions from effect of a merger in a very similar market
b) The prohibition relates to a conditional merger		
Surveys	Can always be used, but the more hypothetic the scenario the more to biases the responses	Relies on the expectations of well-informed market players (competitors, suppliers, customers)
Event studies	Can be used provided firms are quoted on stock market	Relies on the expectation formed by stock market when remedies were proposed
Structural models	Can be used if remedies are structural and easy to model	Simulates effects of the merger using ex-ante data on supply and ex-post data on demand

4.3.6 A summary of how to assess if a decision met its ultimate economic goal

4.92 This section has discussed in a details how to assess the change in consumer welfare caused by any possible merger decision the Commission can take relative to its counterfactual(s). Box 4.1 below summarises the results.

Box 4.1: Summary of methods for evaluation possible decisions

Case A: Unconditional authorisation

Table 4.2 for the appropriate methods

Case B: Unconditional authorisation when remedies offered

It consists of two decisions:

- 1) whether to allow the unconditional merger
- 2) whether to allow the merger subject to proposed remedies

Decision 1) can be evaluated using the same methods as for Case A

Decision 2) does not have to be evaluated

Case C: Authorization with remedies

It consists of two decisions that need to be evaluated starting from the latter:

- 1) whether to allow the unconditional merger
- 2) whether to allow the merger subject to proposed remedies

Decision 2) can be evaluated using the same methods as for Case A

Decision 1), which needs to be considered only if decision 2) resulted appropriate, can be evaluated using the following methods:

- Structural model where a supply curve is estimated with pre-merger data to simulate what would have happened without the merger
- Event study
- Survey of market players

Case D: Prohibition when no remedies offered

Refer to Table 4.3 a for the appropriate methods

Case E: Prohibition when remedies were offered

It consists of two decisions that need to be evaluated starting from the latter:

- 1) whether to allow the unconditional merger
- 2) whether to allow the merger subject to proposed remedies

Refer to Table 4.3 b for the appropriate methods for the valuation of decision 2)

Decision 1), which needs to be considered only if decision 2) resulted appropriate, can be evaluated using the same methods as for Case D

4.5 Summary

- 4.93 In this Chapter we have discussed at how to assess whether, given a specific merger decision taken by the Commission, consumers would actually have been better off had a different decision been reached.
- 4.94 The proposed methodology is articulated in two stages:
- 1) the identification of the possible alternative decisions (i.e. the counterfactuals); and
 - 2) the measurement of the net effect of consumer welfare of the decision made by the Commission.
- 4.95 The first stage is relatively easy once the legal constraint that the MCR imposes on the Commission are taken into account. Table 4.1 above provides some guidance on how to identify the relevant counterfactual for each possible decision.
- 4.96 Most of the Chapter is instead devoted to explain how to perform the second stage of the assessment. For each possible decision we explain how to structure the comparison between the decision and the relevant counterfactual(s) and we propose possible empirical methodologies. Box 4.1 above summarises all our suggestions.

5 The assessment of the analysis

5.1 The aim

- 5.1 The ex-post evaluation of a merger decision cannot be simply limited to a verification of whether the Commission met the MCR's goal of protecting consumer welfare. It is also important to know why and how the Commission met this goal. Without understanding why the Commission reached a decision and, in case an error was committed, where exactly it lies, it is not possible to enhance the Commission's ex-ante decision-making process, and reduce the probability and the size of the errors²⁶.
- 5.2 In addition, even if the Commission took the appropriate decision, it could have done so for the wrong reasons. Hence, a complete ex-post assessment of a decision should understand how the Commission reached this decision and verify if the analysis that underpins it was correct and complete, where by analysis is meant the nexus of factual assertions and logical propositions through which the Commission attempts to identify the relevant casual relationships between the proposed merger and the expected development of the market. Through this exercise it is possible to identify any past error and derive useful lessons from it. This is the aim of the assessment of the analysis.
- 5.3 In this chapter we propose a methodology that could be used to assess the analysis on which the Commission based a decision. This methodology is articulated in three stages:
- 1) the identification of the key arguments on which the decision was based;
 - 2) the evaluation of the validity of these key arguments; and
 - 3) the evaluation of the completeness of these key arguments.

²⁶ The Commission may decide to clear a merger also when it envisages the risk of anticompetitive effects, if it considers this risk to be low, so that the expected cost of a prohibition is higher than its expected benefit. In this case, if the reviewer finds out that the merger actually harmed consumers, she cannot conclude that the analysis was inappropriate. A single event, in this case a single merger, is insufficient to express any judgement on the prior probability of the event that determined the anticompetitive effects. Hence, the Commission might have been correct in assessing the very low probability of anticompetitive effects and, nonetheless, the improbable, but still possible event materialized.

5.4 In the following sections we discuss these three steps in some details and provide some practical indications on how to perform the assessment.

5.2 Some preliminary observations

5.5 A decision about a proposed merger contains a set of factual assertions and logical propositions, which are employed by the Commission to foresee the likely consequences of the proposed merger on the market, on its degree of competition and, eventually, on consumer welfare. These represents the arguments on which a decision is based.

5.6 Only a subset of these arguments is key to the analysis, in the sense that if one of them proved wrong or invalid the decision may have been inappropriate. In other words the key arguments are those that determined the type of decision made by the Commission and had one of them been different the Commission may have reached a different decision. The ex-post assessment of the analysis needs to focus only on these key arguments.

5.2.1 Factual assertions and logical propositions

5.7 As mentioned above, a key argument may contain:

- a factual assertion;
- a logical proposition.

5.8 A factual assertion consists in the description of an observable phenomenon. In general it involves no judgment as it consists in a pure observation of a market characteristic, such as the size of the market shares, the number of competitors, the amount of available production capacity, or the type of competition that prevails in a market. Hence, assessing their validity means verifying whether each one was true or false at the time when the decision was taken, and whether its status has changed since then.

5.9 However there are cases in which these characteristics cannot be quantified or described in an uncontroversial manner because there is no clear threshold that can qualify them or because the decision does not express them out in an uncontroversial way. For example the decision may contain propositions such as “transportation costs are *high relative* to the value of the products”, “production costs differ *significantly* between two products”, “entry barriers are *high*”, “there is *little* product

differentiation”, or “prices are *transparent*”. The truthfulness of these “fuzzy” statement is more difficult to verify, but, as we discuss in section 5.4, there are ways to do it.

- 5.10 A logical proposition, instead, consists in a reasoning that on the basis of a set of premises, which consists of factual assertions, derives a conclusion. Because of its complex structure, there are two notions of validity that apply to a logical propositions. One refers to the internal consistency of the reasoning: a logical proposition is valid if, when the premises are true, the conclusions are also true. If the conclusions do not logically follow from the premises than the proposition is inconsistent and cannot be relied upon. It is important to verify the internal consistency of each key logical proposition on which a decision is based.
- 5.11 The second notion of validity, which is the main check that the reviewer needs to perform, concerns the economic theory that underpins the reasoning: a logical proposition is valid if the conclusion are related to the premises by a valid economic theory. For example, it is valid to say that, when a market is transparent, demand is stable and growing, and there are a limited number of firms with homogenous production functions, it is likely that these firms may tacitly coordinate their behaviours, because this reasoning is consistent with the theory on coordination. However, it is not correct to say that a firm that produces an input, but has no market power in the market where this is sold, can foreclose the downstream market if it vertically integrates with one of its customers. The economic theory on vertical foreclosure clearly states that it is necessary to have a dominant position in the upstream market to be able to determine a significant reduction in competition in the downstream market.
- 5.12 The validity of a logical proposition, in the two senses just discussed above, is different from its truthfulness and this difference must be understood and borne in mind while performing the assessment of the analysis of a decision. If one or more of the premises of a logical proposition, which are factual assertions, are false, then the conclusion is also false. However, the logical proposition may still be valid if the reasoning behind it is correct because it is consistent and relies on a valid economic theory. In the example above on tacit coordination, if the market is not transparent because the prices are agreed on a one to one basis between suppliers and buyers, the conclusion about the likelihood of a tacit collusion is wrong, even if the reasoning behind it is valid.

5.2.2 More details on the stages in which the assessment of the analysis is articulated

- 5.13 The first stage of the methodology we propose consists in identifying exactly which are the key arguments on which a decision is based. This ensures that, in the following stages, the reviewer focuses only on the arguments that determined the decision and avoids replicating the whole ex-ante analysis.
- 5.14 The second stage requires the verification of the validity of the key arguments. This implies that the reviewer has:
- 1) to separate factual assertions from logical propositions;
 - 2) to verify if all the factual assertions, including those that form the premises of the logical propositions, are true or false;
 - 3) to check the internal consistency of all the logical propositions; and
 - 4) to verify that the conclusions in each logical proposition follows from the premises on the basis of a valid economic theory.
- 5.15 The third stage deals with the verification of the completeness of the key arguments, as, if any important factor has been disregarded, the Commission will have performed an incomplete analysis of the possible effects of the merger. Often the identification of any missing key factor is a by-product of the assessment of the logical proposition performed in the second step. Hence the separation between step 2 and 3 is more logical than temporal as, if an error is found, it is important to distinguish whether it is related to validity or the completeness of the key arguments.
- 5.16 We must warn that it is practically impossible to provide a complete description of all factual assertions and logical propositions that may form the analysis behind a merger decision, and, therefore, of all types of checks that may have to be carried out ex-post. In what follows we only describe a general method for performing this ex-post review and supplement this description with some examples. The actual ex-post assessment of a decision can be based on this methodology, but must adapt it to its specific content and circumstances.

5.3 Stage 1: identification of the key arguments

- 5.17 The first stage of the methodology we propose consists in identifying exactly these key arguments.

5.18 The natural starting point for identifying the key arguments that have driven a decision is to follow the analytical framework that the Commission uses for its ex-ante assessment of proposed mergers. This framework is presented in the Commission's Horizontal Merger Guidelines²⁷ and can roughly be described as the following sequential procedure:

- 1) the relevant market is defined;
- 2) the possible competitive concerns raised by the merger are assessed; and
- 3) if there are competitive concerns, the impact of any possible countervailing factor is considered.

5.19 We can group 2) and 3) in a single phase that we call "the competitive assessment".

5.3.1 The key arguments driving the market definition

5.20 The market definition is a tool that helps in identifying the competitive constraints faced by the merging parties. The products that should be included in the relevant market, and the geographic boundaries of that market, are determined by the extent to which customers readily switch between substitute products, or suppliers can readily switch from the production of one of these products to the production of another. The key to market definition is substitutability. If a merger involves multi product firms, the Commission's decision can involve several product markets.

5.21 The market definition may be driven by some simple factual assertion or by some complex combination of factual assertions and inferences. Suppose for instance that there exist national legislations that impose well-defined standards for the employment of a given input in a production process, that these standards vary from country to country and that only firms based with a country can effectively satisfy the specific standard it requires. This situation will determine both the product and the geographic market of the specific input²⁸. In such a simple case, the key argument on

²⁷ Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, (2004/c 31/03).

²⁸ A similar situation occurs in the markets for the broadcast transmission services with the terrestrial analogue technology. In some countries licensed broadcasters have an obligation to transmit through the terrestrial network, therefore they cannot regard other transmission platforms (e.g. satellite) as a feasible alternatives. Moreover, they must purchase transmission services from the local suppliers, since terrestrial network operators located in other countries cannot provide the required service.

which the market definition is based is just the existence of national rules that prevent any possibility of substitution.

- 5.22 Indeed it is more probable that the delimitation of the relevant markets will be based on a more complex analysis. The Commission is likely to base its definition of the relevant product market on some key argument concerning the existence of characteristics that may affect the degree of substitutability between different products from the consumer point of view or the costs of switching production from one product to another. In this case a simple key argument may consist of the fact that two products are used for different purposes by the same group of consumers and, therefore, are not seen as substitutes. A slightly more complex argument may be that it is technically possible to switch from the production of one good to another but the cost that have to be incurred renders it economically unfeasible. These are all factual assertions whose truthfulness needs to be tested in an ex-post review.
- 5.23 The definition of the relevant product market may also be based on a more sophisticated and complex analysis that contains both factual and logical propositions. For instance, in some cases the degree of demand-side substitutability between two products is determined through the use of empirical techniques, such as the econometric estimation of the demand elasticity, or the computation of the diversion ratio or the critical loss. In these cases, the analysis is based both on factual propositions (the original data) and on a (possibly) quite complex set of logical propositions and inference links which concern the method employed for the collection of the data, the economic model and the estimation technique employed and the interpretation of the results.
- 5.24 As for the definition of the relevant geographic market, the same considerations apply. In some simple cases, the geographic boundaries of the market may depend on some simple facts, e.g. the existence of legal, linguistic or cultural barriers. More often, the analysis is based on the direct assessment of some characteristics, such as the level of the transportation costs relative to the value of the product(s). In more complex cases, the delimitation of the geographic market contain both factual assertions and logical propositions. For instance, the Commission may base the definition of a geographic market as national on the observation that trans-national transactions are very limited. This is a factual observation that on its own is not sufficient to determine the exact extension of the market. There has to be an explanation of this

observation, for example it could be the assumption that the limited international trade is due to some barriers that are not surmountable even if the relative prices of the products change significantly. The ex-post review has to check the validity of the factual assertion and of the explanation of the phenomenon provided in the decision.

- 5.25 These examples suggest that the definition of the relevant market(s) may be based on a number of simple and complex arguments. However, in most cases, the reviewer does not need to test them all. She needs to single out only those arguments that are key to the final assessment made by the Commission and test them.

Box 5.1: Identification of the key arguments driving the market definition

In order to identify the key arguments driving the market definition the reviewer needs to:

- A) Describe the boundaries of the relevant product and geographic markets as defined in the decision;
- B) List all the statements that concern the substitutability (or the lack of) between the candidate products and candidate areas;
- C) Distinguish, among these statements, those that contain factual assertions and those that contain logical propositions.

5.3.2 Key arguments driving the competitive assessment: horizontal mergers

- 5.26 The competitive assessment that the Commission performs when ex-ante deciding about a proposed merger amounts to considering the impact of the merger on the development of the relevant market(s) and its effect on competition and, hence, on consumers. This requires the Commission to understand how the structure of the market and the nature of competition are affected by the merger and to make an ex-ante estimate of their likely evolution following the merger. In particular, the Commission has to assess whether there will be sufficient competitive constraints that can limit the market power of the merged entity.

- 5.27 The Horizontal Merger Guidelines split up the ex-ante evaluation of a merger into two parts: a competitive assessment in the absence of any countervailing factors and, if this analysis raises some concerns, a consideration of the possible countervailing factors and whether their presence is sufficient to restrict the market power of the merged entity or generates enough benefits for the consumers to compensate the expected anticompetitive effects.
- 5.28 There are mainly two types of possible anticompetitive effects associated with an horizontal merger: unilateral effects and coordinated effects. A merger has unilateral effects if it removes important competitive constraints on the merging firms and, thereby, increases their ability to behave independently from their competitors and their customers, whereas a merger gives rise to coordinated effects if it increases the likelihood that the firms operating in the market are able to coordinate their behaviour in an anticompetitive manner without entering into formal agreements.

Key arguments: causes of concern about unilateral effects

- 5.29 There are a large number of arguments that may be considered key by the Commission when considering the possibility of unilateral effects resulting from a proposed merger.
- 5.30 Unilateral anticompetitive effects occur if the entity resulting from the merger is able to charge a higher price, produce a lower output, or otherwise act in a less intensely competitive manner than the merging firms, while its non-merging rivals do not alter their strategies. The likelihood of unilateral effects depends on a number of market characteristics: the market shares of the merging parties, the closeness of the merging firms' products, the price elasticity of the demand curves, the existence of binding capacity constraints, the existence of switching costs, the ability of rivals to reposition their products, the height of the entry barriers.
- 5.31 The Commission decision concerning unilateral effects may contain an analysis of each of these market characteristics, which, in turn, may include factual assertions and logical propositions
- 5.32 For instance, the Commission may maintain that the merging firms have very high market shares and that this suffices to grant them the ability to

raise their price after the merger at the detriment of the consumers. It is rare that a decision to block a merger or to impose structural remedies is based only on this simple factual observation, but, this example allows to clarify our approach. If the entire decision is based only on the size of the merging firms' market shares, the key argument that drives the competitive assessment will be the simple factual propositions that the firms' market shares are "large". Hence, in the ex-post analysis, the reviewer must ascertain whether the factual assertion is true, i.e. she must check whether it is true that the merging firms have a market share that may be qualified as "large".

- 5.33 One may argue that such an analysis is insufficient to validate the entire appraisal of the merger made by the Commission, since the firms' market shares do not contain enough information to assess the ability of the merging parties to raise the price after the merger. We fully agree with this observation. However, our identification of the key arguments (stage 1) that drive the decision serves the purpose of a double assessment: the first one is to identify those arguments whose validity has to be tested (stage 2), the second one is to verify whether these arguments are complete (stage 3). Therefore, in these cases it is important to identify all the key arguments actually made by the Commission and to separately highlights those arguments that are missing in the decisions but would be necessary for the completeness of the analysis.
- 5.34 Let us consider some other examples. The Commission may base its analysis of unilateral effects on some measures of the degree of demand-side substitutability between the products of the merging firms relative to those of their competitors. This measure can be based on a scale of some product characteristics (e.g. the location of the supply) or can be the result of the estimation of the cross-price elasticities of the demand for these products.
- 5.35 The size of the switching costs between the merging firms' and the competitors' products may be another important element driving a decision. The existence of high switching costs may be proved through a survey of actual or potential buyers, or through some natural experiment, or through the direct estimation of the cost a buyer incurs if he wants to change supplier.
- 5.36 The presence, or absence, of capacity constraints can also be crucial in the assessment of possible unilateral effects. If the competitors have a

limited ability to respond to a price increase, or to an output reduction, by expanding their output, a concentration may raise more concerns. This market characteristic may be ascertained through several techniques, such as a survey on the productive capacity of the relevant players, or the past observation of their behaviour.

- 5.37 In all the previous examples, the key arguments contained some factual assertions and some logical propositions. Their identification is an important step to assess ex-post the validity and completeness of these key arguments.
- 5.38 In some cases, the Commission may appraise the likelihood of unilateral effects and their size through some empirical techniques, such as a simulation of the price effects of the merger based on some market model or a reduced-form estimation based on historical evidence²⁹. These techniques require the adoption of a number of assumptions. Even if the Commission does not explicitly spell out all these assumptions, they must be considered as arguments on which the decision is based. For instance, if the Commission in its simulations uses a model of price competition, one has to read the decision as if it contained a proposition asserting that the model that best describes the way the firms compete in the relevant market is one in which they strategically set their prices. Hence, the ex-post review must also check whether this proposition is true.

Key arguments: causes of concern about coordinated effects

- 5.39 The second type of possible anticompetitive effects associated with a merger consists in the creation of an environment more conducive to tacit coordination. Coordination may take various forms, such as keeping prices above their competitive level, limiting production, sharing the market or allocating contracts in bidding markets. For instance, a merger may significantly increase the likelihood of such coordinated effects if it involves a maverick firm with a tradition of disrupting coordination by undercutting high prices.
- 5.40 The EC Guidelines stress that a reduction in the number of competitors is not sufficient per se to raise concerns about coordinated effects. Thus, it cannot be a key argument unless the market(s) in which the merger takes place presents other characteristics that are conducive to coordinated behaviour, such as:

²⁹ For a description of these techniques see Werden and Froeb (forthcoming).

- 1) the economic environment is stable and relatively simple so that it is relatively easy for the firms to reach a common understanding on the terms of coordination,
 - 2) firms are able to monitor the other firms' behaviours; and
 - 3) credible and sufficiently severe punishment mechanisms are likely to exist.
- 5.41 There are several market characteristics that may affect the ability of firms to coordinate their conducts. Therefore, a decision in which the risk of coordinated effects is assessed will contain several factual and logical propositions about these market characteristics.
- 5.42 For instance, mergers that render markets more symmetric in terms of market shares, capacity levels, cost structures or levels of vertical integration are considered as facilitating coordination. Similarly coordination is more likely in markets where products are homogeneous. By contrast the Commission is unlikely to be concerned about coordinated effects in unstable markets with frequent entry and exit of firms or in markets where innovation is important.
- 5.43 To sustain a collusive agreement firms must also be able to monitor the terms of the agreement. For this reason the Commission will express its view on the transparency of the markets (i.e. the visibility of prices and other contractual conditions) and/or on other market conditions that may allow firms to detect, easily and in a timely fashion, whether other firms have deviated from the coordinated course of actions. Examples of factors that may render markets more or less transparent are the existence of a public exchange or open outcry auctions, or the existence of confidential negotiations between sellers and buyers.
- 5.44 Monitoring may be more difficult in unstable economic environments since firms may find it difficult to infer whether low sales are due to bad economic conditions or due to a price cut by a competitor. Therefore, the decision is likely to contain statement concerning the evolution of the market, the lack (or presence) of innovations and the likely growth (or decrease) in demand.
- 5.45 The claims contained in the decisions may be based on simple factual observations or on more complex analyses which include both factual assertions and logical propositions. For instance, the evolution of the

demand may be assessed thanks to an econometric model that contains a number of explicit and implicit assumptions. The validity of the key argument made by the Commission in its analysis has to be checked considering all these assumptions.

5.3.3 Key arguments driving the competitive assessment: non-horizontal mergers

- 5.46 While an horizontal merger may negatively affect competition by directly removing the competitive restraint exerted by the merging parties on each other, non-horizontal mergers (vertical or conglomerate mergers), by definition do not have this consequence. Indeed, a non-horizontal merger involve firms that produce complementary products rather than substitutes. Nonetheless, in some cases a non-horizontal merger may raise competitive concerns.
- 5.47 A non-horizontal merger can create the same anticompetitive effects as a horizontal merger, i.e. unilateral and coordinated effects. Therefore, all the considerations expressed in the previous sections apply also to non-horizontal mergers. However, economists agree that such anticompetitive effects are never (or seldom) the direct consequence of the merger alone. They can materialize only if the new entity emerging from the merger has the possibility and the incentive to engage in practices that hinder the ability of some rivals to compete in one of the markets in which the merging parties operate.
- 5.48 For instance, unilateral effects may occur, as a consequence of a vertical merger, if an upstream monopolist can, thus, leverage its market power downstream. This effect can take place only if the monopolist is able to adopt strategies that raise the cost of its rivals or reduce their revenues. A raising rivals' costs strategy typically requires input foreclosure, that is the decision by the integrated firm either to stop supplying downstream rivals, or to charge a higher price. In both cases, by raising their costs, the upstream monopolist may relax the competitive constraint exerted by its downstream competitors. This strategy is possible if the integrated firm controls the supply of the input and if it has an incentive to change the behaviour of its upstream division post-merger because it will internalize the effect on downstream prices.
- 5.49 This example shows that the analysis of the competitive effects of a non-horizontal mergers must be based on the assessment of several market characteristics. The Commission has to consider: if one of the merging

firms holds a position of considerable market power in one of the markets in they operate, the ability of the new entity to foreclose one of the markets in which it operates, and its incentive to adopt such a strategy. In its decision the Commission will have made statements aimed at proving the existence or the absence of these conditions and all of them have to be identified by the reviewer.

5.3.4 Key arguments driving the competitive assessment: countervailing factors

- 5.50 When a merger raises anticompetitive concerns, the Commission may nevertheless approve the merger if it identifies countervailing factors that more than offset these initial concerns. The Horizontal Merger Guidelines emphasizes three types of countervailing factors, namely countervailing buyer power, post-merger entry and merger-specific efficiencies.
- 5.51 A merger that significantly increases market power may not significantly impede effective competition if its customers possess significant buyer power. Customers have buyer power if they have the ability to easily and costlessly change supplier or refuse to buy other products of the merging firms, if they can credibly threat to vertically integrate upstream or if they can sponsor upstream entry. In the context of coordinated effects, a large buyer may render coordination more difficult by tempting the suppliers to deviate from the terms of coordination, for example by offering them long term contracts. The Horizontal Merger Guidelines however stress that the simple presence of strong buyer power is not sufficient for it to be a countervailing factor. It is also necessary that customers have an incentive to exercise their buyer power and that this benefits all customers. For example, a downstream firm may decide not to sponsor upstream entry if also its downstream competitors could benefit from it.
- 5.52 Another possible key countervailing factor is post merger entry if it occurs on a sufficient scale to counteract the potential anti-competitive effects of the merger, and if it is expected to be timely³⁰.
- 5.53 Finally, the EC Guidelines affirm that the anticompetitive effects of a merger may be compensated by merger-induced efficiencies that benefit consumers. A prominent source for merger induced efficiencies are economies of scale and scope that may enable the merged entity to reduce both its production and distribution costs, or that favour R&D

³⁰ Entry is normally considered timely if it occurs within two years following the merger.

investment and innovation. Efficiency considerations play an essential role in the assessment of non-horizontal mergers. These mergers may enhance the efficient allocation of resources by eliminating double mark-ups, or by solving problems related to incomplete contracts and transaction costs.

- 5.54 Once again, the decision will contain factual assertions and logical propositions concerning the likelihood of any countervailing factor. The reviewer needs to test whether these factual assertions are true or false and whether these logical propositions are valid or invalid.

Box 5.2: Identification of the key arguments driving the competitive assessment

In order to identify the key arguments driving the competitive assessment the reviewer needs to:

- A) Identify the competitive concerns examined in the decision;
- B) Identify the countervailing factors examined in the decision;
- C) List, for each competitive concern and for each countervailing factor, all the key arguments that form the assessment made in the decision;
- D) List, for each key argument, all the statements that form the assessment made in the decision;
- E) Distinguish, among these statements, the ones that contain factual assertions from the ones that contain logical propositions;
- F) Repeat A-E for each relevant market identified in the decision

5.4 Stage 2: validity of the key arguments

- 5.55 Stage 2 of our methodology consists in assessing the validity of the key arguments in the Commission decision in the light of the additional information generated by the development of the relevant market(s). This

requires to verify if each factual assertion identified in stage 1 is true or false and if each logical proposition identified in stage 1 is valid or invalid.

5.4.1 Short remarks on the available tools to test the validity of the key arguments

- 5.56 It would extremely difficult and lengthy to list and discuss all the tools that the reviewer can use to test the validity of the key arguments that drove a merger decision. However, as a general indication, we can say that the reviewer can rely on all those tools that are employed by the competition authorities to perform the ex-ante evaluation of a merger.
- 5.57 Several empirical tools have been developed and routinely applied to identify the relevant product and geographic markets. They include the direct estimation of the demand elasticities of the products that may be included in the relevant market, price correlation studies, shock and critical shock analyses, diversion ration calculations, and various tests based on shipments and transport cost.³¹
- 5.58 In almost all cases, or at least in all the controversial ones, the Commission acquires information through non-structured surveys (i.e. through targeted requests for information). These questionnaires solicit the views of several market players on a number of market characteristics, such as the degree of substitutability between products or geographic areas, the presence of barriers to entry, the level of the switching costs, the existence of economies of scale or scope, the prevalent mode of competition, the degree of buyer power, and so on.
- 5.59 Some market characteristics may be investigated through the empirical analysis of market data, such as the estimation of cost³² and demand functions. The identified market features are then employed to forecast the likely effects of the proposed merger through a series of inferences and logical propositions. In a small number of cases the Commission relies on natural experiments or on structural models to simulate the effects of the proposed merger³³.

³¹ We are confident that most readers of this report are already familiar with these empirical tools. For those who are not some valid references are Baker and Rubinfeld (1999), Bishop and Walker (2006), ABA (2005).

³² See note 30 for some references on these techniques.

³³ See Chapter 2 and Appendix II for a description of these two empirical techniques.

5.60 This short list of empirical techniques shows that a comprehensive discussion of the tools available to reviewer to test the key arguments behind a merger decision is beyond the scope of this study. In addition, we must warn that the methodology we propose in this report does not aim to achieve a complete assessment of the effects of a merger, but only an ex-post evaluation of the merger *decision*. The objective of the second stage of the proposed methodology , i.e. the assessment of the analysis, is to understand whether the key arguments contained in the decision were valid and sufficient to support the conclusions of the Commission. Hence, in our opinion, the reviewer should first and foremost adopt the same tools that have been employed during the ex-ante investigation, using the additional information available because time has elapsed since the decision was adopted. Only if the reviewer finds that these tools do not provide sufficient evidence to conclude that a key argument was valid or invalid, she can decide to employ a different tool.

5.4.2 Assessing the factual assertions

5.61 The process of assessing whether the factual assertions contained in the key arguments that drove the decision is not very different from the one originally performed by the Commission. The same methods and tools that can be and are employed for the ex-ante evaluation of a merger can and should be applied in its ex-post assessment. The main difference, and advantage, in performing the assessment ex-post is that further information can be available because time has elapsed since the decision was adopted.

5.62 This situation allows the reviewer to assess both whether the factual assertions were true or false at the time the decision was made and whether they are true or false when the ex-post assessment is performed. Some examples may clarify how to perform this assessment.

5.63 Example 1. The Commission may argue that two intermediate products are not substitutes because the adoption of one rather than the other in the production of the final good would require the buyer to modify its production technology and acquire costly machinery. This statement contains several factual assertions. The first is technical and states that the two intermediate products require different machines to be processed. This statement can be checked by asking technical experts if is true. The second assertion is that firms do not possess already the machinery required to use the alternative product or that this machinery is already used at full capacity. Only if this statement is true is also true that the

substitution of one intermediate product for another requires to acquire new machinery. The final proposition concerns the fact that the machinery required to use the alternative intermediate product is costly. The assessment of the validity of this proposition imposes to collect information on the cost of the machinery and compare it to the cost of the intermediate products.

- 5.64 Example 2. Suppose that the decision contains the factual assertion that the price elasticity of the demand for a certain product lies between 1.5 and 2. To test this statement the reviewer can use the same dataset employed by the Commission and verify if this statement is true with respect to different specifications of the demand function. Moreover, he can collect new data on the values of the same variables employed by the Commission in the years following the decision and verify if the statement remains true also when a larger dataset is used to estimate the demand price elasticity.
- 5.65 Example 3. Consider the case in which the Commission claims that buyers in a specific market do not possess countervailing buyer power, because each one accounts only for a small portion of the total output of the merging firms. The reviewer may want to verify the validity of this statement by collecting information on the sales made by each of the merging parties to some selected buyers ordered by the share of the firms turnover accounted for by these sales³⁴.
- 5.66 There are cases, as in some of the examples above, in which the factual assertions are fuzzy. For instance, as discussed at the start of this Chapter, the decision may contain propositions such as “the transportation costs are *high relative* to the value of the products” or “the production costs differ *significantly* between two products”. In these cases, it is almost impossible to say that they are true or false in absolute terms, unless a very clear-cut result is obtained. For instance, if the Commission states that production costs differ significantly between two products and the ex-post assessment reveals that the production costs are in fact exactly the same, one can say that this factual assertion is false. However, if there exist a cost difference, the assessment hinges on the identification of

³⁴ The fact that each buyer only accounts for a small portion of the total output is not really enough to conclude that there is no buyer power as the buyers could form groups and thus procure the product jointly. If the Commission has not excluded this possibility this show that its analysis is incomplete (see Stage 3).

some threshold that justifies the qualification of this difference as significant.

- 5.67 The reviewer can deal with this problem in two different ways. A first possibility consists in asking some experts to express their opinion with respect to the factual statement made by the Commission. For instance, a survey of producers can be conducted in which the respondents are asked to express their view about whether the cost differences should be considered “significant” or “non significant”. This approach would provide a direct way to assess whether the factual assertion is to be regarded as true or false. However, it is likely that the respondents would attach a meaning to the quantifier adopted in the factual statement that is different from the one used by the Commission.
- 5.68 A better way to handle these fuzzy statements is to understand what are their implications for the analysis carried out by the Commission. If the costs of producing two products are said to be significantly different, and therefore so are their selling prices, and this is used to justify the conclusion that the two products are not substitutes even if their relative prices were to change, it may be preferable to directly test the conclusion. Therefore, the survey may contain a question asking “is there a cost difference between product A and product B such that you would consider not economically viable to substitute A with B in case the price of B would rise by 10%?”. This question deals with the fuzzy statement in the decision in a way that is consistent with the intended use and the implications of the assertion. Therefore, it allows to assess whether it is true, in the sense that it supports the analysis performed by the Commission.
- 5.69 Both if the factual assertions are clear-cut and if they are fuzzy, the ex-post reviewer may be interested in knowing whether they are still true in the years following the decision. If they were true when the Commission made them, but have become false thereafter, it is important to understand what factors have determined this change. Even if this does not modify the assessment of the validity of the specific statements made in the decision, it can indicate the existence of some factors that have been neglected by the Commission and that may impact on the validity of the whole analysis. This issue will be explored in section 5.5.
- 5.70 Some factual assertions contained in the decision may regard future events. For instance the Commission may argue that the demand for a certain product will decline over time. It is likely that this forecast is based

on a collection of factual and logical propositions that need to be assessed one by one. However, it may be advisable to check whether the Commission's forecasts have proved to be correct. If the market evolved in the way the Commission predicted this will also tend to confirm the validity of each factual assertion and logical proposition on which the prediction was based. If, instead, the market evolution disconfirms the Commission's forecasts, this will suggest that either some factual assertions were false, or that some logical propositions were invalid or that some key factors were overlooked.

Box 5.3: Assessment of the validity of the factual assertions

For all the factual assertions identified in Stage 1 the reviewer must:

- A) Assess whether these were true or false at the time of the decision;
- B) If these assertions are fuzzy, identify the implications of these assertions for the decision;
- C) Assess whether the fuzzy assertions were true or false at the time of the decision, in the sense that they supported their implications for the decision.

5.4.3 Assessing the logical propositions

- 5.71 Assessing the validity of the logical propositions that form the key arguments on which the decision is based means to ensure that these are internally consistent as well as consistent with the prevailing economic theory.
- 5.72 For instance, suppose that the Commission argues that a vertical merger would lead to the foreclosure of the downstream market on the basis of the observation that the integrated firm would become the major supplier of an essential input. The Commission also claims that the downstream market is un-concentrated and very competitive and that the integrated firm could charge a higher price for the input to its competitors and, thus, reduce the degree of competition existing in the downstream market. According to the economic theory this statement is valid if the loss in profit stemming from an increase in the input price (the upstream dominant firm was already maximising its profits) is more than compensated by an

increase in the profits of the integrated firm in the downstream market. This in turn depends on the degree of competition existing in the downstream market. If the downstream market is very competitive the effect on the profit of the downstream division of the integrated firm would be insufficient to compensate the profit loss incurred by the upstream division. Hence, the economic theory does not support the logical proposition made by the Commission.

5.73 There are cases in which more than one economic model may potentially describe the outcome of the merger, such that one supports the conclusions of the Commission and the others do not. For instance, the Commission may argue that a merger is unlikely to produce coordinated effects because demand is growing rapidly. According to the theory of collusion, if the number of firms does not vary, a growing demand makes tacit collusion more easily sustainable. This proposition is based on the observation that the prospect of higher future profits relax the firms' incentive compatibility constraint and, therefore, discourage them from deviating. However, the increase in demand may render implausible the assumption that the number of firms is fixed, as it may encourage further entry. If the number of firms increases over time the market conditions may also evolve in a way to reduce the possibility of tacit collusion.

5.74 As shown in the above example, when more economic models are applicable, they will contain different assumptions about some relevant characteristics of the market. Therefore, in assessing the validity of the logical proposition in the key argument made by the Commission, the reviewer must ascertain which economic model is applicable. This analysis will lead to the identification of some market features that constitute a key factor for the overall assessment of the decision. Therefore, it is important to ascertain whether the decision investigated this market features. If it did not the key factor constitutes a missing key factor. The analysis of these missing key factors is undertaken in the next section.

Box 5.4: Assessment of the validity of the logical propositions

For all the logical propositions identified in Stage 1 the reviewer must:

A) Assess whether they are internally consistent;

B) Assess whether they are supported by a valid economic model;

- C) In case more economic models are applicable, identify the market features that distinguish the different models;
- D) Assess whether the decision examines the market features that make one of the economic models applicable;
- E) If the decision examines these market features, assess whether they suggest the application of the economic model that supports the argument made in the decision.

5.4.4 A further consideration about factual assertions and logical propositions

- 5.75 In some cases, a set of factual assertions and logical proposition is employed to prove some factual characteristic of the market that is not observable. For instance, the Commission may argue that the firms active in the relevant market have symmetric cost of production, but does not possess any reliable direct information on their cost functions. Therefore it infers this market characteristic from the observation that these firms need to buy the same inputs and that these inputs are available in competitive markets where all buyers face the same price. The conclusion reached by the Commission hinges on the assumption that all firms employ the same production technology and are equally efficient. Only if these assumptions are correct, the cost symmetry inferred by the Commission follows logically from the premises and the factual observations.
- 5.76 In this situation, the reviewer may decide to check all the factual assertions and the logical propositions used by the Commission to prove the existence of the market characteristic claimed in the decision. An alternative strategy is to check directly whether the factual assertion about the relevant market characteristic is actually true. Considering the above example, one can investigate directly the proposition that the firms face the same cost of production. Of course this strategy is possible only if the ex-post reviewer can obtain information that was not available to the Commission at the time of the decision. Whenever it is possible, it is advisable to test directly the factual propositions that were only proved through some inference in the decision.

5.5 Stage 3: missing key factors

- 5.77 After the identification of the key arguments in the decision, and the assessment of their validity, a further useful exercise consists in verifying if these key arguments include all the key factors that may affect the competitive effects of a proposed merger.
- 5.78 The key factors are all those characteristics of the market that determine the impact of a merger on competition and, hence, on consumer welfare. It is possible that in developing the key arguments on which its decision stands the Commission can miss one or more of these key factors, thus distorting the competition assessment and possibly reaching an inappropriate decision. Hence it is important to understand if any key factor has been overlooked and why.
- 5.79 For example suppose that the market where the merger took place is characterised by such high switching costs that consumers are unlikely to switch providers, even after a very large price increase. If the Commission, for some reason, did not consider the magnitude of these switching costs as important in determining the reaction of consumers to a possible price increase, it would be likely to commit an error that can affect the appropriateness of its decision. Such an error would not be picked up, even in the ex-post assessment, if this only focuses on the re-evaluation of the key arguments on which the decision stands.
- 5.80 It is important to highlight that even if a decision is correct, in that it properly protects consumer welfare, the Commission could still have missed a key factor, though it is more likely that, if one or more key factors are overlooked, the Commission reaches an inappropriate decision.
- 5.81 In the following sections we outline three methods the reviewer can adopt to assess the completeness of the key argument driving the decision. The first method is based on the evaluation by the reviewer of the reasoning followed by the Commission; the second method requires to test the implicit predictions contained in the key arguments against the actual evolution of the market; the third method relies on the opinions of some qualified market players.

5.5.1 Sufficiency of the Commission's reasoning

- 5.82 In order to check whether there are missing key factors, the reviewer may first ask whether the key arguments on which the Commission bases the

market definition and the competitive assessment are sufficient. Therefore, the questions to be asked are:

- 1) *Are all the factual and logical positions that form the key arguments contained in the decision sufficient to support the market definition used for the assessment of the merger?*
- 2) *Are all the factual and logical positions that form the key arguments contained in the decision sufficient to identify and assess all the competitive concerns that the merger could raise?*
- 3) *Are all the factual and logical positions that form the key arguments contained in the decision sufficient to identify and assess all the countervailing factors?*

5.83 These questions can be further broken down to consider each aspect of the market definition and the competitive assessment. For instance, we can ask whether the key arguments made by the Commission are sufficient to identify the relevant product market, or the competition mode in the relevant market, or the likelihood of entry, and so on.

5.84 This part of the ex-post evaluation of the analysis is largely based on the judgment of the reviewer. Indeed, whether some evidence is sufficient to prove a statement depends on the degree of certainty we consider appropriate. Therefore, the reviewer should not only answer the questions outlined above but also explain the reasons why the key arguments are considered sufficient or insufficient.

5.85 Most of the missing key factors related to the sufficiency of the key arguments will emerge as a by-product of the assessment of the validity of the key arguments. Especially the validation of the logical propositions made in the decision will show whether the Commission should have investigated some factors that were overlooked in the analysis.

5.5.2 Testing the decision predictions against the actual market evolution

5.86 A second way to assess the completeness of the key arguments is to derive the factual consequences of these key arguments and to check them against the actual evolution of the market. For instance, if the Commission argues that entry is unlikely, besides assessing whether the propositions in the decision are sufficient to make this claim, one can

analyse the market evolution after the merger and see whether entry took place. If they did, one has to understand whether these entries were made possible by some key features of the market that the Commission did not consider.

- 5.87 The changes that the market undergoes following the decisions can potentially generate a wide variety of new and useful information. For example, a change in prices may reveal more about the consumers' preferences, which may confirm or disconfirm the factual assertions concerning the degree of substitutability existing between two products. Some of these changes will have been caused by the decision, but also other discrete events, unrelated with the Commission's intervention, may have occurred, such as a demand shock, technological innovation, a change in regulation or a sudden increase in input prices.
- 5.88 Potentially, all this new information may be useful to evaluate the Commission's ex ante decision and test the completeness of the key arguments. In general, a decision to approve a merger (with or without conditions) generates more information than a decision to prohibit it since after an approval the merger actually takes place. More importantly the merger may be the only event that can be used in order to evaluate the Commission's competitive assessment. The reason is that the competitive assessment makes a forecast about how the merger will affect the future market interaction. If the merger does not take place (as implied by a prohibition) it may thus be very difficult to test the Commission's forecast. It should be emphasized however that some economic events, unrelated to the merger, may be useful to test the Commission's decision, including aspects of the competitive assessment.
- 5.89 In what follows, we provide some examples of some merger-related or independent events that can help to test the completeness of the key arguments concerning the market definition, the analysis of the competitive concerns and that of the countervailing factors.

Key arguments concerning the market definition

- 5.90 A merger typically generates changes in relative prices and may thus help to test for the substitution patterns underlying the Commission's definition of the relevant market. A similar change in relative prices may be due also to events unrelated to the merger such as a change in the cost of productions or in the exchange rates among different areas. This

exogenous shocks may provide useful information to understand whether the predicted consumers' behaviour actually occurred.

Key arguments concerning the competitive concerns

- 5.91 The reason why a merger may be anticompetitive (and thus may be prohibited) is that it reduces the number of competing firms. To evaluate the key arguments contained in a decision prohibiting a merger, it would thus be helpful to identify events unrelated to the proposed merger with the same effect. Such an event could be an increase in fixed costs, for example due to a change in regulation, which would trigger the exit of one active firm in the market. Note however that the anticompetitive effect associated with the exit of a firm probably is more severe than the one associated with a merger, since a merger is unlikely to lead to the exit of productive assets and may even create synergies within the merged entity. For this reason the Commission may have overlooked some competitive effects if the exit of a firm did not increase prices significantly.
- 5.92 A number of events may also shed light on a decision containing arguments related to the risk of coordinated effects. For example, a significant increase in prices following an event facilitating coordinating practices could show that the industry is conducive to price fixing behaviour. Such an event could be a firm introducing a new product, the effect of which is to render this firm more similar to the other firms in the industry. In the absence of coordinated effects, the expected effect of the newly launched product would be to decrease the prices of competing products. If instead these latter prices increase it could suggest that the introduction of the new product, by rendering the firms more symmetric, facilitated coordinating practices. Such an event could show the existence of conditions conducive to coordinated effects associated that may have been overlooked by the Commission.

Key arguments concerning the countervailing factors

- 5.93 An increase in demand may work as a substitute to the completion of a merger in order to assess the completeness of a decision to block a merger on the ground that the merger's anti-competitive effects are not counteracted by the entry of new firms. The reason is simply that an increase in demand, exactly as an anticompetitive merger, has the effect of increasing prices and thereby renders entry more profitable. An increase in demand followed by entry (no entry) would thus suggest that the Commission over- (under-) estimated the extent of the entry barriers.

5.5.3 Survey of qualified market players

- 5.94 The third way the reviewer can assess the completeness of the key arguments is to ask some qualified market players to read the decision and express their opinions on whether all the relevant characteristics of the market were taken in the due account by the Commission.
- 5.95 Such a survey should involve subjects who have a deep knowledge of the industry affected by the decision. Some basic knowledge of the economic instruments normally employed in the merger control policy would be also useful. In Appendix IV we provide template for a questionnaire that can be used for such a survey.

5.5.4 Do unforeseeable events count as missing key factors?

- 5.96 The ex-post assessment may reveal an evolution of the market due to some key factors that the Commission did not consider for the simple reason that it could not foresee them. For instance, the introduction of an innovative and successful product may dramatically affect the position of the firms and their market power. If the new product was not in the pipeline at the time of the decision, the Commission could not have anticipated its introduction. Even if the Commission knew of the imminent introduction of this new product it could not have predicted its success, as this is typically the result of the evolution of consumers' tastes that are generally unpredictable.
- 5.97 One may wonder whether such unforeseeable events should be counted as missing key factors. On one hand, an aspect of the market that the Commission could not have foreseen at the time of the decision because it emerged, or developed, later should not count as a missing key factor, as the aim of the ex-post assessment is to point out all the weaknesses and errors in the Commission's decision making process that could be amended. Hence, if they key factor was not foreseeable at the time of the ex-ante analysis there may be no value in insisting on it.
- 5.98 On the other hand, the unforeseen event may affect the market in a way to make the decision inappropriate, so that it failed to protect consumer welfare. Even if the Commission did not err in performing its analysis of the likely competitive effects of the merger, we can argue that its decision resulted in an error, judged ex-post. Even if we cannot learn any specific lesson from these errors we can learn a general lesson: even the most complete and careful analysis can lead to wrong decisions.

- 5.99 On the basis of these considerations, we believe that calling unforeseen event “missing key factors” or not is not a relevant issue. It is important, however, to understand whether some events that took place after the decision could have been anticipated by the Commission and stress it, so that it becomes clear what lessons can be learnt.

Box 5.5: Identification of the missing key factors

For all the key arguments identified in Stage 1 the reviewer must:

- A) Assess whether they are sufficient to support the conclusions reached by of the Commission on the definition of the relevant market(s) and on the competitive assessment, and identify any missing factor;
- B) Derive the implicit or explicit predictions made in the decision and check them against the actual evolution of the market;
- C) Ask a sample of qualified players to express their opinions on whether all the relevant market characteristics of the market were taken in the due account by the Commission, and identify any missing factor;

For all the missing key factors identified:

- D) Assess whether they are due to events that were not foreseeable by the Commission at the time when it took the decision.

5.6 Tools to support the methodology

- 5.100 In order to support those who will perform an ex-post assessment of the analysis behind a merger decision following the methodology herein proposed, we have developed:
- a template for a questionnaire that could be used to identify the key arguments (see Appendix III); and
 - a template for a questionnaire that could be used to verify if any key factor has been missed (see Appendix IV).
- 5.101 The first questionnaire asks for the respondent’s opinion on the relevance of potentially key factual conditions and logical propositions on which the

decision of the Commission is based. The degree of relevance is defined according to a 5-value scale that ranges from “key” to “immaterial”. The respondent is not asked to assess the validity of the arguments put forward by the Commission, but only to express his/her view on the relevance of each argument in the final decision.

- 5.102 The second questionnaire helps to identify any key factor that may have been missed and requires a judgement on whether these key factors were foreseeable at the time when the decision was taken. Hence, each question has two parts: the first one asks whether the Commission did not take into account a specific key factor, while the second asks whether the Commission, given the information available at the time of the decision, could have foreseen the importance of the missing key factor. The questionnaire ends with two open questions asking to report any missing key factors that are not covered by the questionnaire and to rank all the missing key factors according to their importance for the competitive assessment of the merger.
- 5.103 Although we have tried to design questionnaires that could be applicable for all type of decisions, we are aware that the templates presented in the Appendices will have to be adapted to each case in order to take into account the number and nature of the markets involved, and the type of decision to be assessed and that some questions may be redundant. For instance, when evaluating a prohibition decision it is more appropriate to ask whether the “lack” of countervailing factors, rather than their presence, constituted a key argument.
- 5.104 In addition the specific content of the questionnaire on the missing key factors will also depend on the results of the process of identification of the key arguments, as its aim is exactly to identify those factors that erroneously had not been included among the key arguments.
- 5.105 These questionnaires can be used by the reviewers and act as guide of the assessment of the analysis or can be submitted to external advisors. In particular the questionnaire on the identification of the decision’s key arguments could also be submitted to a panel of experts that could thus provide to obtain their own reading of the decision. The experts should be familiar with the merger regulation and must not have been involved in the original decision making process. For example, the Commission could ask officials of national competition authorities, academics or other independent practitioners to act as experts. The questionnaire on the

missing key factors has instead been designed to be administered to market participants, since these are best placed to identify any elements that may have been overlooked in the original analysis. Anyhow it can also be used by the reviewers themselves to support their analysis.

PART II - THE CASE STUDY

6 The Pirelli/BICC merger

- 6.1 In this Part of the study we apply the methodology described in Chapters 4 and 5 to a decision adopted by the Commission in 2000. This decision concerns the merger between “Pirelli Cavi e Sistemi” and “BICC General”, two producers of power cables systems³⁵.
- 6.2 The merger consisted in the purchase by Pirelli, an Italian company belonging to the Pirelli Group, of part of the business of BICC, a UK-based company active world-wide in the development, design and manufacture of cable products. More precisely, the parties had concluded a Share Purchase Agreement according to which Pirelli would have acquired from BICC four manufacturing plants in the UK, two plants in Italy, and the totality of the shares in six companies³⁶.
- 6.3 The products concerned by the operation were: general wiring, copper rod and insulated power cables of low, medium, high and extra-high voltage. With respect to these products, the Commission identified four relevant markets: one for general wiring, one for copper rod and two for power cables³⁷:
- a market for low and medium voltage power cables (LV/MV), which included cables up to 1 kV, 1-33 kV cables and 1-45 kV cables;
 - a market for high and extra-high -voltage cables (HV/EHV), which included 33/45 -132 kV cables, 275 kV cables and 400 kV cables.

³⁵ Case M.1882 – Pirelli/BICC, Commission decision of 19.07.2000

³⁶ The companies owned by BICC General and acquired by Pirelli were the following:
“BICC General UK Cables Limited” (UK)

“Industrial Cables” (UK)

“BICC Rod Rollers Ltd” (UK)

“Supertension and Subsea Systems” (UK)

“BICC General Ceat Cavi S.r.l. Settimo Torinese” (Italy)

“BICC General Cavi S.r.l. Ascoli” (Italy)

³⁷ The definition of two separate product markets for power cables was in contrast with the merging parties’ view, according to which there existed one single market for all power cables, whichever their voltage.

This latter market included both extra-high voltages fluid-filled power cables and extra-high voltages XLPE³⁸ power cables.

- 6.4 With regard to their geographic boundaries, these markets were defined as EU-wide (at the time of the decision the EU included only 15 member states).
- 6.5 As requested by the DG Competition, in performing the ex-post assessment of this decision, we will only focus on the two markets for power cables. At the time when the decision was made, these markets were the ones that generated the greatest competitive concerns and hence the Commission considered that these were the markets where an inappropriate decision could have caused more negative consequences.
- 6.6 The Commission initially feared that the merger could have led:
- Pirelli/BICC and Alcatel to gain a collective dominant position in the LV/MV market ,
 - Pirelli/BICC to gain a single dominant position in the HV/EHV market,
 - Pirelli/BICC and Alcatel to gain a collective dominant position in the HV/EHV market.
- 6.7 Anyhow, after a thorough analysis of the main features of the two markets, the Commission did not find any conclusive evidence that the merger would create or strengthen any dominant positions, and decided to clear the merger.
- 6.8 In this part of the study, we consider if the Commission took the appropriate decision, i.e. we perform a substantive assessment of the Pirelli/BICC decision, and we verify the validity and completeness of the analysis that underpinned it, i.e. we perform an assessment of the decision with respect to its analysis.
- 6.9 Chapter 7 contains our examinations of the effects of the merger on the power cable markets and on the welfare of consumers necessary to

³⁸ XLPE is an innovative technique based on extruded insulation achieved with the help of cross-linked polyethylene. The traditional technology for the production of power cables, the “fluid filled” or “oil filled” technology, involves a process based on the use of insulating laminar paper wrapped around the conductor and impregnated with a dielectric fluid.

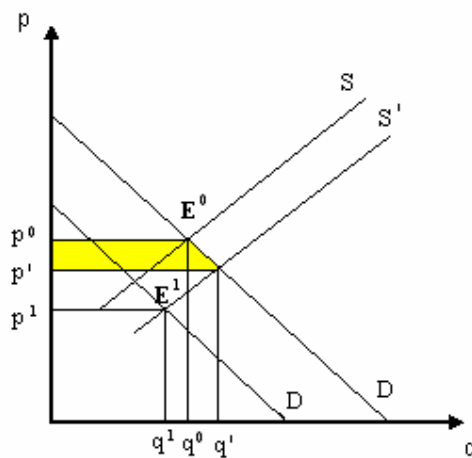
conclude whether the Commission met its goal of protecting consumers. Chapter 8 identifies the key argument on which the Commission's ex-ante analysis hinged, tests their validity and verifies whether any key factor has been overlooked. Chapter 9 contains some general conclusions on the whole study.

7 The “assessment with respect with the ultimate goal”

7.1 Introduction

- 7.1 In this chapter we perform the assessment with respect to the ultimate goal of the *Pirelli/BICC* decision. The purpose of this assessment is to establish whether the Commission could have better pursued its goal of protecting consumer welfare by adopting a different decision.
- 7.2 In order to establish whether the Commission’s decision to clear the merger between *Pirelli* and *BICC* reached this goal better than any of the available alternatives, we have looked at the post-merger evolution of the market variables that determine the level of consumer welfare to understand how this has changed. These variables are: the prices of the power cables, the volumes of power cables sold and their quality and variety.
- 7.3 However, as discussed in details in Chapter 4, it is not sufficient to verify whether the merger increased consumer welfare in the affected market, as it is possible that this might have been even higher had a different decision been made. Hence, we have considered the effects of the alternative decisions available to the Commission. In the *Pirelli/BICC* case, the only possible counterfactual is the prohibition of the merger, since no remedies were offered by the parties (see Table 4.1 in Chapter 4). Hence, only the analysis of the welfare implications of prohibiting the merger allows to establish the net effect of the Commission’s decision.
- 7.4 This case falls under what we have termed in Chapter 4 as case A – because it consists of an authorisation without conditions - and, as we will show in the rest of this Chapter, it corresponds to scenario A.1, where prices decreased, because the production costs diminished due to an increase in efficiency of the suppliers, and the market became more competitive. However, in this specific case, output diminished too because of, what resulted to be, an exogenous reduction in demand. Nevertheless, the reduction in demand was due to causes independent from the merger, had it not happened the price reduction would have caused a rise in output. Hence, the overall effect of the merger for the consumers was an increase in welfare.

Figure 7.3: The effect of the Pirelli-BICC merger on consumer welfare



7.5 Figure 7.3 shows what happened in the two markets affected by the merger. E_0 represent the market equilibrium as it was before the merger. Following the merger there was a shift in the supply curve (from S to S') due to the increase in competition and in the efficiency of the merged entity, which led to a reduction in prices (from p^* to p_m), an increase in output (from q^* to q_m) and a gain in consumer welfare (the highlighted area). These effects are due to the merger. The figure also shows the further shift in the supply curve (from S' to S'') due to the gain in efficiency that of all suppliers induced by the process of consolidation that took place in the power cable industry and the downward shift in the demand curve (from D to D') due to the reduction in investments by the utilities. These two latter changes, which had opposing effects on the level of consumer welfare, were instead simultaneous but independent from the merger. Hence, as far as the assessment of the Commission's decision on the merger is concerned, the effects of these changes on consumer welfare are not relevant.

7.2 The empirical tools employed

7.6 In order to perform this assessment, two main empirical tools have been used:

- an event study, and
- a survey of the main market players.

- 7.7 The event study is a methodology that evaluates the effects of an event on a market by gauging the stock markets' reactions to the announcement of the event. Event studies rely on the assumptions that financial markets are efficient and that the expectations of the agents are rational. If these assumptions are true, a firm's stock price should always represent the discounted value of its flow of profits and when an event is announced, which is expected to affect the profits of a firm, the stock price should adapt to reflect this change. More details on this empirical technique can be found in Chapter 4 and Appendix II.
- 7.8 The event study we have run has allowed us to assess the change in the stock prices of the competitors and the customers of the merging firms when the merger was proposed, when the Commission announced that it was going to undertake a Phase 2 investigation and when it cleared the merger. From this information we have derived a view on the effects of the merger on the relevant markets. In addition, we have been able to ascertain that the increase in competition that led to the price reduction was due to the merger and not to exogenous changes in the market structure.
- 7.9 A survey instead involves the collection of data directly from a representative sample of the participants to the relevant markets through a written questionnaire or a set of interviews. The survey that we have conducted involved both the main competitors and the main customers in the markets for power cables. To each group we sent a questionnaire. A subset of the respondents was also interviewed³⁹ to arrive to a better understanding of the changes that the market underwent in the years following the merger (we focused on the period 1999-2003).
- 7.10 The questionnaires have been sent to a total of 44 market players including both customers and suppliers. The companies selected operate in 10 different European countries, namely Italy, Germany, the UK, Sweden, Spain, the Netherlands, Belgium, France, Greece and Switzerland. Out of the 44 companies contacted, 15 have filled in the questionnaire, for an overall response rate of 34%. As mentioned above, the questionnaires have been supplemented by telephone interviews: these have been held with executives and technicians of 7 companies, both producers and customers, chosen for their specific relevance in the

³⁹ The telephone interviews involved mainly technicians and executives of the relevant firms.

analysis. Among the companies interviewed, 4 of them had already contributed by filling the questionnaires.

- 7.11 Among the suppliers, we selected firms operating exclusively in the LV/MV market, and firms engaged in both markets. These two groups of firms differ substantially in terms of technologies employed and in terms of the organisation of their productive process. As far as the customers are concerned, we contacted a group of companies representative of the demand side in the two markets: local public utilities, firms operating in the energy and in the transport sectors, and large national utilities. The former two purchase mainly LV/MV power cables, whereas the latter demand almost exclusively HV/EHV cables.
- 7.12 This survey has allowed us to collect quantitative data and qualitative information from both sides of the market. This data have permitted us to ascertain that both prices and quantities had decreased, and that, while the former was due to an increase in competition and in efficiency, at least partially spurred by the merger, the output reduction was the consequence of an exogenous shift in demand. This helped us to conclude that consumer welfare increased as a consequence of the Commission's decision to approve the merger.
- 7.13 We chose not to use an evaluation method because finding a control group of firms appeared difficult given the peculiar characteristics of these markets, especially the changes they were going through both on the demand and on the supply side. In addition, as stressed in Chapter 2 and in Appendix II, these methods require a good quality dataset that spans over a set of mergers and over time within the same industry, which we did not have and it would have been extremely costly and time consuming to acquire. We also did not find a structural model appropriate for this case because the main form of interaction in the markets under consideration were auctions and to set up a sensible structural model in this context would have been quite complex. Anyhow, as explained in Appendix II, not all the methods we have proposed have to be used at the same time to assess a decision, though more than one can be used to integrate their results.
- 7.14 As we will show in the next two sections, our overall conclusion is that the Commission took the appropriate decision, as consumers have benefited from the merger more than they would have from its prohibition.

7.3 The event study

7.15 In this section we present the results of the application of the event study methodology to the BICC-Pirelli merger. In the following paragraphs we explain step by step how the analysis has been performed and what conclusions it has yielded:

- we started from the identification of the firms that could be affected by the merger and, thus, whose stock prices can incorporate useful information about the expected effects of the concentration;
- we defined the relevant event dates, i.e. when the stock market received the most relevant news about the merger;
- we calculated the abnormal returns and cumulative abnormal returns that the firms may have earned around the event dates; and
- we tested them to verify their statistical significance.

7.3.1 Identification of the relevant firms

7.16 The first step in the event study was to identify the main competitors and customers of Pirelli and BICC based on the information available in the decision and in the file of the case as provided by the Commission. Table 7.1 below contains the names of these firms.

Table 7.1: Competitors and customers of Pirelli and BICC

COMPETITORS

Major:

Alcatel (Fra), ABB Group (Swi), Brugg Cables (Swi), Draka Holding (NL), NKT Cables GmbH (Ger), Sagem (Fra).

Minor:

Fulgor Greek Electric Cables SA (Gr), La Triveneta Cavi S.p.a. (Ita), Aristoncavi (Ita), Italian Cable Company S.p.a. (Ita), AEI Cables (UK)

CUSTOMERS

Italy:

Acea Electrabel Trading Spa, AEM Spa, ASM Spa, Edison Spa, Edipower, EGL Italia, Endesa Italia, Enel Distribuzione, Energia Spa, Ferrovie dello Stato, Gruppo Falck, Tirreno Power.

U.K.:

CE Electric UK, Central Network (a Company of E.ON), EDF Energy, National Grid, Powergen (a Company of E.ON), Scottish Power PLC, Scottisch and Southern Energy PLC, United Utilities Electircities, Western Power

Distribution

Other countries:

Electrabel (Belgium), Endesa (Spain), EDF (France), E.ON (Germany), RWE AG (Germany), Suez (France), Stadtwerke Lübeck (Germany), VEW Energie (Germany), Vattenfall (Sweden).

7.3.2 The identification of the relevant event dates

- 7.17 The second step consisted in identifying the relevant event dates. The merger announcement constituted our first event. The selection of the announcement date is key when performing an event study, since the aim is to capture the exact moment when the news about the merger reached the stock market. If the date is correctly identified, one can assume that any change in share prices of the relevant firms on that day can be interpreted as the stock market's expectations on the effects of the merger.
- 7.18 The merger announcement date is the first day in which the merger appears in the international press. We found the "announcement date", *February 11 2000* through the "Dow Jones interactive", a customised business news research engine that integrates and searches the content of newspapers, news-wires, journals, research reports, and financial websites.
- 7.19 The other "events" that we considered and whose precise date we identified are relative to the formal steps in the merger control procedure: the merger's notification, that took place on *March 14 2000*, the Commission's Phase I decision, that was issued on *April 17 2000*, and the Commission's Phase II decision, that was made public on *July 17 2000*.
- 7.20 Since news about a merger and the relative investigation can leak out, considering some days before, and even after, the identified event dates (the so called "event window") might help to capture more precisely the expectations about the effects of the merger. Hence, we considered two different event windows around these four event dates, one extending symmetrically for 10 days around each event and the other running from 10 days before to 5 days after each event.

7.3.3 The collection of the stock-market data

- 7.21 Having defined the significant dates, we collected the stock market data for the relevant firms. We used Datastream, the most commonly adopted and complete database on stock prices. However, we only found a fraction of the identified firms because some of these were not listed in the main stock exchanges when the merger was announced and investigated. Table 7.2 below shows the final sub-sample of firms whose stock prices we collected.

Table 7.2: The final sub-sample of firms

COMPETITORS

ABB, Alcatel, Draka Holdings, NKT, Sagem

CUSTOMERS

ACEA, AEM, E ON, Edison, EGL, Electrabel, Endesa, ENEL, Energia (CIR), Falck, National Grid, Powergen, RWE, Scottish Power, Suez, Vattenfall, Verbund, VEW

- 7.22 We collected daily stock prices for all these firms, not just during the event windows, but also for the whole period running from 1 January 1998 to 31 January 2003, in order to have enough information about the stocks' history to be able to calculate what would have been the values of shares had the merger not been announced (i.e. the counterfactuals). We also collected information to build a country specific index, which is also needed to derive the counterfactuals.

7.3.4 The counterfactual

- 7.23 The counterfactual of a firm's stock price is calculated on the basis of a financial model, such as the "market model" or the "capital asset pricing model"⁴⁰, which describe how the price of a stock is related to the value of a market index. The past history of a firm's stock is used to estimate the parameter governing such models. From the estimated parameters it is then possible to determine the hypothetical value the firm's stock would have reached, had the merger not occurred.
- 7.24 We employed the market model which assumes that the value of a firm's assets (R_{it} where i = firm and t = day) is proportional to the value of a market portfolio (R_{mt} where m denotes the market and t the day):

⁴⁰ See Appendix II.

$$R_{i,t} = \alpha + \beta R_{m,t} + \varepsilon_{i,t}$$

where $\varepsilon_{i,t}$ represents a stochastic error which consists in unobservable shocks to the deterministic relationship.

7.25 Using a firm's share values for the month before the event, it is possible to estimate the parameters α and β that rule this relationship, and predicted the stock value had the specific event not occurred. By contrasting the observed stock value with the predicted value, one can calculate the daily abnormal return (AR), which measures the merger's effect. The daily ARs are cumulated over the span of the window around the event day to obtain a cumulative average abnormal return (CAAR).⁴¹

7.26 The last step consists in testing whether the CAAR are significantly different from zero⁴². For this purpose we used the following test statistic:⁴³

$$T = \frac{1}{n} \frac{CAAR}{\sigma_{AR}}$$

where σ_{AR} is the daily abnormal return standard deviation and n is the size of the event window.⁴⁴

7.3.5 The results: daily ARs

7.27 Table 7.3 presents the daily abnormal returns for competitors and customers around the different event dates: announcement, notification, phase I decision, and phase II decision.

⁴¹ See section 4 for a more formal description of the methodology.

⁴² We have used the more restrictive two tailed test (ARs different from zero) rather than the less restrictive one tailed test (ARs positive or negative).

⁴³ This is a simple t-statistic, which is normally distributed, has mean 0 and standard deviation of 1. The same test can be used to test whether the daily abnormal returns are significant by substituting CAAR with AR and n with 1.

⁴⁴ If the absolute value of test is greater than 2.576, then the average abnormal return for that stock is significantly different from zero at the 1% level (marked as *** in the tables). If the absolute value of test is greater than 1.96, then the average abnormal return for that stock is significantly different from zero at the 5% level (marked as ** in the tables). If the absolute value of test is greater than 1.645, then the average abnormal return for that stock is significantly different from zero at the 10% level (marked as * in the tables). These values come from the standard normal distribution with a mean of 0 and a standard deviation of 1

- 7.28 Panel A shows the ARs for the competitors. Most of them are negative, though, given the large standard errors, not one is statistically significant. In particular, at the announcement date, where the ARs should measure the market assessment of the merger's effects without any consideration for the possible remedies that the Commission may impose, we observed negative ARs for 3 firms (Draka, NKT, and Sagem) out of 5. Draka's and NKT's shares lose around 1%, while Sagem's around 2%. but none of these effects are significantly different from zero. The other two competitors (ABB and Alcatel), instead, present positive ARs of 1.5% and 3.9% respectively, but these too are not significantly different from zero. Hence, the picture which we obtain from the changes in the competitors' share values around the announcement date is that the stock market expected the merger not to affect them significantly.
- 7.29 With regard to the market reactions at the other relevant event dates, we can see that the ARs are negative for 4 out of the 5 competitors, although not significant, both when the merger is notified to the Commission and when the Phase I decision is issued, whereas at the time of the Phase II decision there is a fall in the shares of 3 out of 5 competitors. None of these result was significant.
- 7.30 In order to evaluate the overall effect of the merger once the uncertainty about the merger inquiry was resolved, we also summed the abnormal returns relative to these four dates and we obtained negative ARs for 3 out of 5 competitors. However only the drop (-14%) in Sagem's share price, one of the German competitors, was statistically significant. NKT, another German competitor, is the only competitor that seemed to profit from the merger, even though the value is not significant.
- 7.31 These results suggest that the Commission took the right decision when it approved the merger. Negative, or no positive, ARs for the competitors signal that there was the expectation that the merger would have decreased, or at least not increased, their profitability. This result implies that the financial markets anticipated that the merger would have increased the merging firms' efficiency, thus giving them a competitive advantage over their competitors. An increase in the market power of the merging firms benefits both them and their competitors, but only the merging firms can appropriate the gains that derive from an increase in efficiency (see Duso, Neven, and Röller, 2006). An efficiency-increasing merger makes consumers better off and, as such, should be approved by the Commission.

- 7.32 Panel B shows the ARs for the largest customers of Pirelli and BICC from which we estimated the expected effect of the merger on the profits of the downstream firms. this information, If we assume that any increase in profits of the buyers is been passed on to the final consumers⁴⁵, can be used as a proxy of the effect on consumer welfare (since it is only the welfare of the final consumer what should guide the Commission's decision).
- 7.33 The data shows that most customers enjoyed positive and significant ARs around the announcement date. The gains are in some cases considerably large and all statistically significant. For instance, Energia's stock has an increase of 16%, Verbund of 9%, AEM and National Grid over 6%. The only firms that incur a loss are Endesa, Enel, Falck and VEW, i.e. the major Spanish and Italian customers, but of these only Endesa shows a statistically significant decrease in its stock price (-4%).

⁴⁵ This is not necessarily true. It depends on the degree of competition in the downstream market.

Table 7.3: Daily abnormal returns

Panel A: Competitors										
Name	Announcement		Notification		Phase 1 Decision		Phase II Decision		Sum	
	AR	T-statistic	AR	T-statistic	AR	T-statistic	AR	T-statistic	AR	T-statistic
ABB	0.0152	0.6191	-0.0171	-0.6851	0.0182	1.1405	0.0046	0.2853	0.0210	1.3598
Alcatel	0.0390	1.3732	-0.0132	-0.4664	-0.0114	-0.3920	-0.0236	-0.9577	-0.0092	-0.4429
Draka Holdings	-0.0102	-0.4131	-0.0090	-0.3469	-0.0077	-0.2976	-0.0088	-0.4485	-0.0358	-1.5061
NKT	-0.0105	-0.4979	0.0789	1.2946	-0.0100	-0.1644	0.0032	0.1379	0.0617	0.7702
Sagem	-0.021	5-0.2421	-0.0673	-0.9609	-0.0542	-0.7516	-0.0043	-0.2980	-0.1473	-2.2525***
Panel B: Customers										
Name	Announcement		Notification		Phase 1 Decision		Phase II Decision		Sum ^a	
	AR	T-statistic	AR	T-statistic	AR	T-statistic	AR	T-statistic	AR	T-statistic
ITALY										
ACEA	0.0518	1.2627	-0.0043	-0.1039	-0.0550	-1.5143	-0.0136	-0.6356	-0.021	-0.9912
AEM	0.0689	1.9742 **	-0.0577	-1.0846	-0.0303	-0.6256	-0.0013	-0.0612	-0.020	0.2027
EGL	0.0352	0.7749	-0.0359	-0.8209	-0.0340	-0.5232	-0.0214	-0.7256	-0.056	-1.2948
ENEL	-0.0210	-0.7958	0.0445	1.8021 *	-0.0306	-1.456	0.0013	0.1238	-0.006	-1.4564
Energia (CIR)	0.1687	3.2620 ***	0.01702	0.2961	-0.0427	-0.9262	0.0023	0.0858	0.1453	2.7176 ***
Falk	-0.0453	-1.3457	-0.0140	-0.3845	0.0357	1.1139	-0.0127	-0.5058	-0.036	-1.1222
UK										
National grid	0.0644	2.7291 ***	0.0131	0.4860	-0.0101	-0.4459	0.0183	1.2811	0.0857	4.0503***
Powergen	0.0329	1.1181	0.0113	0.2698	-0.0333	-0.7868	-0.0046	-0.2465	0.0064	0.3546
Scottish Power	0.0410	1.3207	-0.0044	-0.1333	-0.0307	-1.181	-0.0015	-0.0949	0.0044	-0.8886
OTHER COUNTRIES										
Electrabel	0.0393	2.8152 ***	0.0042	0.2152	-0.0103	-0.5534	0.0002	0.0166	0.0334	2.4935 ***
Endesa	-0.0427	-1.9765 **	0.0406	1.8982 *	0.0241	1.2479	0.0223	1.2943	0.0444	0.5657
E ON	0.0048	0.1505	0.0206	0.6212	0.0160	0.5022	-0.0012	-0.0582	0.0402	1.2157
RWE	0.0109	0.4055	-0.0580	-1.9472 *	-0.0130	-0.5045	-0.0041	-0.2847	-0.064	-0.3836
Suez	0.0047	0.2085	0.0200	0.8305	0.0194	1.0766	0.0135	1.1314	0.0577	1.0767
Vattenfall	0.0014	0.05135	-0.0004	-0.0163	0.0144	0.9011	0.1418	4.7469 ***	0.1572	0.9362
Verbund AKT	0.0992	3.0431 ***	0.0715	1.8737 *	0.0010	0.0345	-0.0048	-0.0359	0.1669	2.7188***
VEW	-0.0208	-0.6125	-0.004	-0.0867	0.0191	0.4693	0.0015	0.0929	-0.005	-0.1370

- a This is the sum of the abnormal returns across the different dates.
* The value of the test in this case is greater than 1.64, which means that the ARs is significantly different from 0 at the 10% level.
** The value of the test in this case is greater than 1.96, which means that the ARs is significantly different from 0 at the 5% level.
*** The value of the test in this case is greater than 2.576, which means that the ARs is significantly different from 0 at the 1% level.

- 7.34 Some more reactions, which are also statistically significant, are observed when the merger is notified. Endesa and ENEL, which lost at the time of the notification, and Verbund experience positive ARs (around +4% and +7% respectively), while RWE's stock price fall (-5%). This is an interesting result as the notification should not provide the market with any additional information about the merger.
- 7.35 Around the Phase I decision date, most of the customers experience negative ARs, especially in the two countries where the two merging firms operate: Italy and the UK. This might signal that the market was worried about a possible Commission's action in Phase II, which might have decreased the customers' gains in profits that had been forecast when the merger was announced. In fact, the probability of a negative decision or of the imposition of some remedies is much higher after a Phase II investigation. However, these results are not significantly different from zero, so no firm conclusion can be derived from them.
- 7.36 Around the date of the Phase II decision, the main result is a large increase in Vattenfall's share price (+14%) that is statistically significant.
- 7.37 Given that the share prices of most of the costumers⁴⁶ increased around the key dates, one could conclude that this additional evidence goes in the same direction as the results observed for the competitors and, therefore, supports the conclusion that the Commission's decision was appropriate. In addition these results are statistically significant which gives this conclusion stronger grounding.
- 7.38 To better understand how the Commission decision affected the different geographical areas that compose the relevant market, we looked at the reactions in the different countries affected by the mergers. For the Italian costumers, the merger was good news when it is announced, but the overall effect, once the merger investigation was completed, tends to be negative. Yet, these overall negative ARs are not significantly different from zero. The only result that is statistically significant is the increase in Ennergia's stock price. In the UK, instead, all the share prices of the customers for which we have data showed a positive reaction at the time of the announcement of the merger and their cumulative ARs are also positive. However, only the results for National Grid are statistically

⁴⁶ 13 out of 17 (5 out of the 6 significantly different from zero) and 10 out of 17 if we consider the sum of the abnormal returns across relevant dates.

significant. In all the other countries, the customers seemed either to profit from the merger or, at least, not to be negatively affected by it.

7.3.6 The results: ARs over the event windows

- 7.39 If some rumours arrive to the market before the day that we have identified as the announcement date or if any relevant information about the merger investigation leaks during the investigations, then the daily ARs might be an inappropriate measure of the merger's expected effects. Therefore, we have also measured cumulative ARs over two different windows around all the relevant events and have tested for their significance.
- 7.40 Table 7.4 reports the results for a symmetric window (i.e. from 5 days before to 5 days after), while Table 7.5 shows the findings for an asymmetric window (i.e. from 10 days before the event to 5 days after it).⁴⁷ The trend is similar to the one observed in the previous table, even if the estimated effects are of a much bigger magnitude⁴⁸. However, it is difficult to drive any conclusions from these figures because the large standard deviations render *all* estimated ARs not statistically different from zero. This might be due to the fact that we identified correctly the announcement day and that, in this particular merger, no information leaked out. Anyway the qualitative results remain unchanged: competitors were expected to lose from the merger, while customers were expected to gain.

7.3.7 Conclusions on the event study

- 7.41 The main result of the event study we performed on the stock prices of the main competitors and customers of Pirelli and BICC is that, on average, competitors did not gain from the merger, while customers did. Hence, we can say that the financial market expected the merger to be pro-competitive and the Commission was right in allowing the merger.

⁴⁷ The proposed event windows are standard practices. There is no fixed rule for defining their dimension. Very short windows (1 day) are preferred in order to avoid the contamination of the estimated effects by other events that might have influenced firms' stock, while longer event windows are preferred if information leakages seem to play an important role.

⁴⁸ To test these results we have employed the more restrictive two tailed test (ARs different from zero) rather than the less restrictive one tailed test (ARs positive or negative). However, even if we had used the less restrictive tests the results would not have been much more significant. However, we do not think that these results are useless or weaken the outcome of the study, because, coupled with the findings of table 7.3, they suggest that information leakages did not play a big role in this case. As we mentioned before, a larger window is aimed exactly at capturing these kinds of effects.

- 7.42 Overall this event study has been a successful one, because it has provided some clear results on the effect of the merger. If compared to many of the results generally observed in the literature, the effects that we have estimated are particularly significant. The significance of the effects is lower when using larger windows, but we believe that this is due to the fact that there were no information leakages or that these were not been important.
- 7.43 Unfortunately not all the firms affected were quoted on the stock market, hence some have been excluded from the study. This implies that not all of the effects of the merger are accounted for in the results of the event study, but, since all the major competitors and customers of the affected firms have been included we believe that this does not represent a problem⁴⁹.

⁴⁹ In addition, the exclusion of some firms does not bias the estimation of the merger's effect for the quoted firms.

Table 7.4: Average ARs over the symmetric window

Panel A: Competitors										
Name	Announcement		Notification		Phase 1 Decision		Phase II Decision		Sum	
	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic
ABB 'R'	-.0203603	-.0826677	-.0184561	-.0739002	.0238469	.149112	-.0246469	-.1522993	-0,0396164	-0.1597552
ALCATEL 'A'	.0000139	.0000489	-.0093063	-.0328108	-.0190206	-.0652273	-.0029573	-.0119972	-0,0312703	-0.1099864
DRAKA HOLDINGS	.0928502	.3747331	-.1242641	-.4765963	-.0610216	-.2351813	-.0745071	-.3792647	-0,1669426	-0.7163092
NKT	.1095385	.5203508	.8428674	1.382651	.0408993	.0672189	.1352135	.5783503	1,1285187	1.548571
SAGEM	.0281174	.0317097	-.2290373	-.327072	-.1994696	-.2766132	-.0901094	-.6238379	-0,4904989	-1.1958134
Panel B: Customers										
Name	Announcement		Notification		Phase 1 Decision		Phase II Decision		Sum	
	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic
ITALY										
ACEA	.1280551	.3124409	-.0779306	-.1873828	-.0490437	-.1350295	-.1000769	-.4692011	-0.0989961	-0.4791725
AEM	.2170066	.6216263	.0661366	.1242912	-.1168219	-.2413847	-.0513535	-.2479791	0.1149678	0.2565537
E ON	.1557155	.491532	.0320437	.0964084	.0512012	.160672	.0255773	.1216585	0.2645377	0.8702709
EGL	-.2585376	-.5698456	-.1125045	-.2573213	.1990832	.3067554	-.0620455	-.2101168	-0.2340044	-0.7305283
ENEL ENERGIA (CIR)	.0077076	.0292292	.1844897	.7479531	.028125	.1339435	.0078689	.0756219	0.2281912	0.9867477
FALCK	-.0820338	-.243955	-.0285671	-.0786677	.0147579	.0460444	.0751888	.2988503	-0.0206542	0.022272
UK										
NATIONAL GRID	.0807563	.342298	.0837537	.3101105	.0072646	.0320935	.0572809	.4009971	0.2290555	1.0854991
POWERGEN	.0231839	.0788131	-.0752873	-.1793657	.068319	.1614601	-.0094275	-.0509197	0.0067881	0.0099878
RWE	.0786615	.2929294	.0591076	.1984387	-.0302641	-.1178803	.0231039	.1593417	0.1306089	0.5328295
SCOTTISH POWER	.2199409	.7084966	.0783905	.2377093	.0821378	.3163242	-.0291724	-.1861937	0.3512968	1.0763364
OTHER COUNTRIES										
E ON	.1557155	.491532	.0320437	.0964084	.0512012	.160672	.0255773	.1216585	0.2645377	0.8702709
ELECTRABEL	-.0391383	-.2803401	-.0773879	-.3934275	-.0057283	-.0306563	-.0352613	-.2675765	-0.1575158	-0.9720004
ENDESA	-.0712783	-.330179	.1145464	.5350292	.0276242	.1448269	.0150451	.0873395	0.0859374	0.4370166
RWE	.0786615	.2929294	.0591076	.1984387	-.0302641	-.1178803	.0231039	.1593417	0.1306089	0.5328295
SUEZ	.0086225	.0382431	-.0150856	-.0626003	-.0514812	-.2856361	-.0197438	-.1650195	-0.0776881	-0.4750128
VATTENFALL VERBUND	-.0603414	-.2185748	.0898223	.3762364	-.0282834	-.177128	.0714698	.2392074	0.0726673	0.219741
AKT	.1444438	.4431192	-.0179826	-.0470999	-.0481686	-.1685709	-.0201232	-.148916	0.0581694	0.0785324
VEW	-.1888675	-.5550368	.0186615	.0372375	-.0155334	-.0381716	.0007677	.0046166	-0.1849717	-0.5513543

Table 7.5: Average ARs over the asymmetric window

Panel A: Competitors								
Name	Announcement		Notification		Phase 1 Decision		Phase II Decision	
	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic
ABB 'R'	.0070466	.019074	-.0388424	-.103686	-.0294406	-.1227258	-.028055	-.1155723
ALCATEL 'A'	.0800659	.187937	-.0661214	-.1554131	.0061298	.014014	.0553295	.1496419
DRAKA HOLDINGS	.2685162	.7224673	-.1519736	-.3885813	-.0658699	-.1692444	.0326672	.1108576
NKT	.1923996	.6093158	.8285932	.9061573	.0163478	.017912	.2754943	.7855835
SAGEM	.104531	.0785906	-.0630318	-.0600075	-.1772063	-.1638265	-.130025	-.6001187
Panel B: Customers								
Name	Announcement		Notification		Phase 1 Decision		Phase II Decision	
	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic	CAR	T-statistic
ACEA	.1308344	.2128147	-.1381526	-.2214569	-.0998538	-.1832817	-.1277823	-.3993971
AEM	.2367092	.4520436	.0045958	.0057579	-.1571601	-.2164894	-.0111219	-.035804
E ON	.0717231	.1509343	.022188	.044504	.0333655	.0698017	.0639862	.2029006
EGL	-.2997439	-.4404459	-.2084965	-.3179167	.1722279	.1769172	.0005731	.0012939
ELECTRABEL	-.0425184	-.203034	.0100609	.0340986	-.0033345	-.011897	-.0799841	-.4046336
ENDESA	-.0812507	-.2509157	.121417	.3780806	.02918	.1019892	.06911	.2674641
ENEL	.0401181	.101426	.2152098	.5816649	.0086582	.0274894	-.0260459	-.1668709
ENERGIA (CIR)	.4237515	.5462404	.0140526	.0162932	-.2467401	-.3571196	-.0006673	-.0016843
FALCK	-.0914993	-.1814027	.0372707	.0684237	-.0157178	-.0326927	.0591142	.1566395
NATIONAL GRID	.1164959	.3291905	.0929093	.2293404	-.0701158	-.2065045	.0422658	.1972555
POWERGEN	-.0304659	-.0690454	-.0660355	-.1048827	.1640437	.2584594	.0509394	.1834226
RWE	.0054912	.0136326	.052571	.1176625	-.0215066	-.0558463	.0520385	.239264
SCOTTISH POWER	.1648156	.3539476	.0259367	.0524333	.1089139	.2796282	-.0402503	-.1712656
SUEZ	.2048247	.6056372	.0629073	.1740293	-.0446209	-.1650483	-.0625724	-.3486546
VATTENFALL	.0397631	.0960228	.1334345	.3726092	.0008465	.0035341	.0907112	.2024052
VERBUND AKT	.0340585	.0696555	-.0701361	-.1224665	-.0210195	-.04904	-.0179604	-.088607
VEW	-.020553	-.040267	.0126215	.0167901	-.0101476	-.0166243	.0106499	.0426958

7.4 The survey: the post merger market evolution

7.44 This section discusses the results of our survey of the market players. We present separately those relative to the HV/EHV market and those relative to the LV/MV market, in order to establish the welfare effects of the Commission's decision in each market.

7.45 Through the survey, we collected quantitative and qualitative information on the evolution of key market variables in the years 1999-2003, in particular prices, quantities, and production costs.

7.46 However, the collection of quantitative information has proved quite difficult, for three main reasons:

1) the issue of confidentiality: firms are reluctant to disclose quantitative information that can reveal their business operations,

2) the changes in the corporate identity of the firms: many firms, both on the demand and on the supply side, have undergone deep changes in the years considered. Several mergers and acquisitions have taken place⁵⁰. This has rendered difficult to retrieve data relative to periods before these major operations.

3) the lack of a clear incentive to participate: the firms had not obligation to reply and may have been damaged by our analysis if it concluded that the market has become less competitive and that there are firms that hold, and may have abused of, positions of dominance.

7.47 The collection of information has been more effective for the demand side of the market; local and national utilities have had a cooperative attitude and have provided accurate information. As far as the supply side of the market is concerned, the attitude of the main producers of power cables involved in our survey has been, in general, more diffident. Only few

⁵⁰For example "Pirelli Cavi e Sistemi" became "Prysmian cables and systems" in 2005, following the acquisition by "Goldman Sachs capital Partners". The new company is now completely independent of the Pirelli Group. Significant changes involved also Alcatel: its cable activities were subsidised in 2000 and renamed "Nexans" and in 2001 there was an IPO of a significant part of Nexans shares. Alcatel kept a 20% share in Nexans, which fell to 15% in 2002. General Cables kept the three BICC plants excluded from the acquisition, and BICC survived as a brand name.

suppliers contacted for the study replied. Their reaction is understandable, as our analysis evaluates the degree of competition existing in their market and may have led to the identification of positions of market power or other anticompetitive behaviours. In our view, the confidentiality problem is, together with the lack of a clear incentive to participate, the main obstacle precluding an effective participation by the suppliers. The presence of these obstacles has to be borne in mind whenever an ex-post survey of an antitrust decision is carried out.

- 7.48 Notwithstanding the lack of hard market data, we believe that the information we collected through the questionnaire provide a clear and convincing picture of the evolution of the relevant markets in the year following the merger.
- 7.49 The information collected have also allowed to identify the potential consequences of the prohibition of the Pirelli-BICC merger, even though no direct questions about the effects of alternative decisions have been asked⁵¹. All the market players involved in the study confirmed that the merger had no negative effects on the power cable markets, neither in terms of higher prices nor in terms of a worsening of other purchasing conditions. This clearly suggests that the market players do not believe that, had the Commission taken an alternative decision (i.e. had it prohibited the merger), it would have increased welfare more than the actual decision.

7.4.1 The market for HV/EHV power cables

- 7.50 Before considering the evolution of prices, quantities, costs and product characteristics, it may be interesting to look at the evolution of the main

⁵¹ How well a survey can help to define the consequences of alternative decisions, and what kind of questions need to be asked to obtain this result, depends sensibly on the decision that has to be assessed. In our case study the counterfactual for an authorisation without condition is a simple one, a prohibition, and the consequences of the decision can be easily derived, without the need for specific questions that require the market players to imagine an hypothetical scenario. If market players are asked to provide their view on the specific effects of the merger, it is also possible to deduce their views about the effects of the counterfactual, i.e. the prohibition,. In other cases, where the alternative decisions are more complex, market players have to be asked directly about hypothetical scenarios. This exercise can present some risks as it might generate some biases in the responses. However, in some cases this is the only option, or one of the few, available (e.g. in the case of a prohibition). Nevertheless in our case study we have been able to avoid the risk of any bias in the responses because the nature of the decision, and of its counterfactual, has allowed us to avoid asking hypothetical questions.

suppliers' market shares. In the HV/EHV power cables market the market share of the merged entity in the EU-15 has remained stable: its share was at about 47% in 1999 and it did not vary until 2003. The market share of the merged entity main competitor, Alcatel, rose by 4% over the years considered. The ability of other competitors to increase their market shares differed across the member states: in the UK companies like Brugg and NKT were able to increase their relative strength; in other countries, such as Germany and Italy, the relative position of the cables suppliers remained relatively stable over the five years examined. Below we provide four tables that show the evolution of market shares in the EU 15 (Table 7.6) and in three major European countries: Italy (Table 7.7), UK (Table 7.8) and Germany (Table 7.9).

Table 7.6: Market shares in value of the major suppliers of HV/EHV power cables in EU-15 (1999-2003)

EU 15	1999	2000	2001	2002	2003
Pirelli (pre merger)	34.6%				
BICC	17.7%	4.0%	4.0%	3.0%	3.0%
Pirelli (post merger)	46.9%	48.4%	49.3%	46.2%	46.7%
Alcatel/NEXANS	14.0%	15.0%	17.0%	18.0%	18.0%

Source: Data provided by Prysmian

Table 7.7: Market shares in value of the major suppliers of HV/EHV power cables in Italy (1999-2003)

Italy	1999	2000	2001	2002	2003
Pirelli (pre merger)	42.9%				
BICC	28.6%				
Pirelli (post merger)	71.4%	75.8%	69.0%	71.0%	75.8%
Alcatel/NEXANS	22.0%	22.0%	22.0%	22.0%	20.0%
BRUGG	4.0%	6.0%	7.0%	7.0%	7.0%
DATWYLER	1.0%	1.0%	2.0%	1.0%	2.0%

Source: Data provided by Prysmian

Table 7.8: Market shares in value of the major suppliers of HV/EHV power cables in UK (1999-2003)

UK	1999	2000	2001	2002	2003
Pirelli (pre merger)	37.1%				
BICC	48.6%				
Pirelli (post merger)	85.7%	71.1%	78.4%	64.1%	62.9%
Alcatel/NEXANS	1.0%	4.0%	5.0%	6.0%	7.0%
BRUGG	4.0%	6.0%	7.0%	7.0%	8.0%
NKT	8.0%	9.0%	9.0%	9.0%	10.0%

Source: Data provided by Prysmian

Table 7.9: Market shares in value of the major suppliers of HV/EHV power cables in Germany (1999-2003)

Germany	1999	2000	2001	2002	2003
Pirelli (pre merger)	32.5%				
BICC	17.5%	15.0%	15.0%	13.0%	10.0%
Pirelli (post merger)	32.5%	37.5%	41.0%	35.9%	37.1%
Alcatel/NEXANS	6.0%	8.0%	9.0%	9.0%	9.0%
NKT	11.0%	10.0%	9.0%	10.0%	10.0%
BRUGG	10.0%	10.0%	8.0%	10.0%	11.0%
ABB	9.0%	9.0%	10.0%	10.0%	10.0%

Source: Data provided by Prysmian

- 7.51 The prices for power cables depend strongly on the quantities purchased and on the particular specification required. Hence, the price per Km differs sensibly depending on whether the buyer is performing a maintenance intervention on the network or it is building a new route. In addition, as the Commission correctly stressed in the decision, “the individual customers typically require different cable designs even for identical voltages”.
- 7.52 The customers who responded to the survey provided us with information on the values and the volumes of the power cables they purchased in the period 1999-2003. However, this information did not provide a reliable measure of the average price and of its evolution over time, as the computed value varied in an unsystematic way across customers and across purchases made by the same customer.

- 7.53 We have, thus, reconstructed the evolution of the prices for cables over the years considered mostly from the qualitative information provided in the written questionnaires and in the telephone interviews. Both the buyers and the producers indicated that the prices for these products have declined. This price reduction has been qualified as “moderate” by most respondents. Among the reasons for this reduction, indicated both by customers and by suppliers there are: 1) an increase in competition, 2) a contraction in the demand, and 3) a reduction in production costs, mainly due to the rationalisation of the supply side of the market.
- 7.54 The increase in competition, as discussed more at length in Chapter 8, appears to be a result of the merger. The reduction in the quantities of HV/EHV power cables, instead, was due to a contraction in the amounts purchased by the large national utilities, which was the result of the privatisation and liberalisation processes that characterised the energy sector over the period under exam. This process led to a reduction in infrastructure investments and, hence, a drop in the demand for power cables. In particular our survey has pointed out the fact that an important reason that determined the decrease in demand was the need for energy utilities to generate the cash-flows in order to finance the acquisitions that characterised the energy markets in those years. These changes in the demand side of the market, which are discussed in more details in Chapter 8, were independent from the merger.
- 7.55 This evolution of the demand had been largely anticipated by the Commission in its decision. However, we found out that it was partially compensated by two additional phenomena : 1) the need to move overhead lines under the ground, and 2) the need to connect the sources of alternative energies to the transmission networks. Hence, in the years 1999-2003, the market has experienced a moderate, demand driven, reduction in the volumes of cables exchanged in the EU-15.
- 7.56 With respect to the evolution of production costs over the period, some producers of power cables have provided data on the costs of the main raw materials employed in the production of cables. These include metals (copper and aluminium), and the materials used to insulate the cables, that is PVC and Polyethylene, as well as labour and energy.
- 7.57 The costs of the metals do not influence directly the price offered by power cables companies as the costs of copper and aluminium (which are determined on the international markets) are normally passed on to

customers and quoted separately. These costs, however, affect the final price paid by the buyers and influence, thus, their demand. During the years considered, there has been an increase in the price of copper between 1999 and 2000, followed by a price decrease at an average annual rate of 10% (see Table 7.10). The price for aluminium has been rather stable (see Table 7.11).

Table 7.10: Price of copper (1999-2003)

	1999	2000	2001	2002	2003
Euro/Kg	1.6	1.95	1.72	1.65	1.42

Source: Lear on data collected through the questionnaires

Table 7.11: Price of aluminium (1999-2003)

	1999	2000	2001	2002	2003
Euro/Kg	1.46	1.26	1.5	1.44	1.41

Source: Lear on data collected through the questionnaires

- 7.58 The cost of other raw materials, in particular Polyethylene and PVC remained stable over the relevant period. The data below (Tables 7.12 and 7.13) refer only to the years 2001-2003 for PVC and to 2002-2003 for Polyethylene, since these are the only quantitative information provided by the cable producers. However, all producers confirmed similar trends for the previous two years.

Table 7.12: Price of PVC (2001-2003)

	2001	2002	2003
Euro/kg	0,702	0,743	0,691

Source: Lear on data collected through the questionnaires

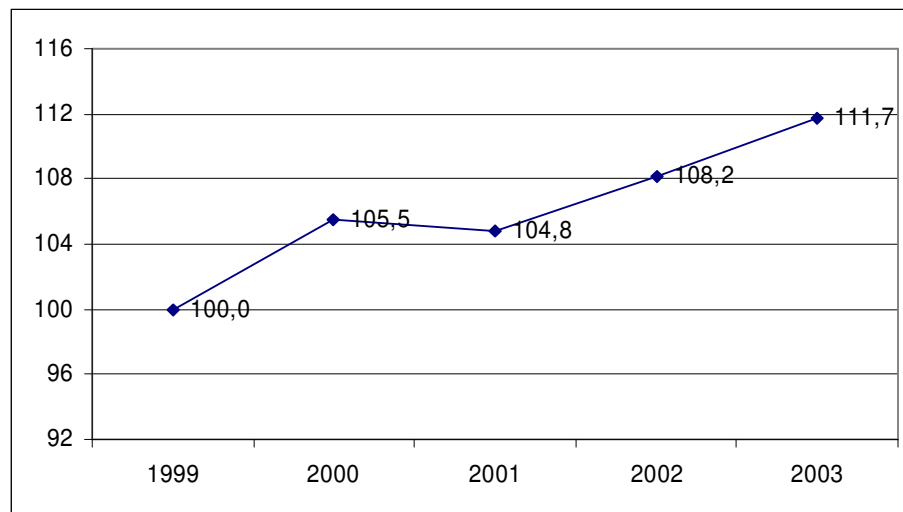
Table 7.13: Price of Polyethylene (2002-2003)

	2002	2003
Euro/kg	0,939	0,925

Source: Lear on data collected through the questionnaires

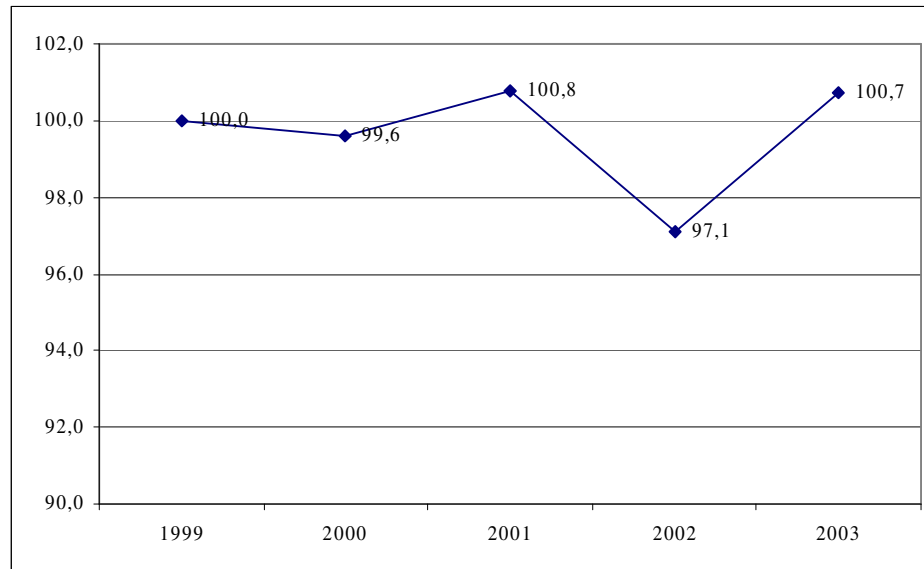
- 7.59 Producers report also significant increases in the cost of labour. We have computed and index for the cost labour based on Eurostat data for the EU-15 (see Figure 7.2), which confirms the information provided by the producers.
- 7.60 As for energy cost, we have computed an index of the cost of energy for industrial users based on Eurostat data for the EU-15 (see Figure 7.3). This shows that the cost of energy followed an oscillatory trend, but that it did not vary substantially over the years examined.

Figure 7.2: Labour cost index EU-15 (1999-2003)



Source: Lear on Eurostat data

Figure 7.3: Energy cost index EU-15 (1999-2003)



Source: Lear on Eurostat data

- 7.61 In conclusion, during the period considered, the cost of the raw materials remained broadly constant, except for the cost of copper. Among the other costs of production, there was an increase in labour costs, while the cost of energy did not vary significantly.
- 7.62 Total production costs per unit, however, moderately decreased over the period 1999-2003. This decrease was due to an increase in efficiency on the producers, which stemmed from the restructuring process experienced by supply side of the market: cable producers reorganised production, several plants were closed in the EU, and production was specialised in order to increase efficiency. These efficiency gains seem to indicate that there were pressures in the HV/EHV market.
- 7.63 The market evolution over the years 1999-2003 can be summarised as follows:
- prices for HV/EHV cables moderately decreased;
 - the volume of transactions went down, mainly in response to a reduction in demand;
 - production costs fell slightly.

- 7.64 In a situation of falling prices and decreasing demand, it is not immediate to reach a conclusion about the change in the level of consumer welfare. However, since we are only interested in the effects that the merger had on consumer welfare, we have to isolate these effects and compare the actual market evolution with the one that would have occurred had the merger been prohibited.
- 7.65 The information provided by the respondents to our questionnaire indicates that, while the reduction in output was due to an exogenous contraction in demand, the price decline was due to a combination of an increase in competition among the main suppliers, spurred by the merger, and an improvement in their cost-efficiency, which was only partially determined by the merger. This increase in efficiency was the effect of a rationalisation and reorganisation of the supply side, which in turn was a response to the decline in demand. The merger between Pirelli and BICC was not the cause of this rationalisation process, nor of the underlying demand reduction, but it was part of this process as it was motivated by genuine efficiency considerations.
- 7.66 With the aim of assessing the welfare consequences of the counterfactual, we also asked the buyers of HV/EHV power cables to express their views on the effects of the merger on competition. We asked if the merger had caused any deterioration in purchasing conditions and whether it had produced any price increase. These questions were aimed at soliciting the customers' views on what could have happened the Commission had prohibited the merger.
- 7.67 All, but one, of the buyer of HV/EHV power cables surveyed reported that the merger did not have any significant effect on competition. The only buyer that claimed that the merger had reduced the degree of competition, however, when asked about its effect on prices, affirmed that the merger did not have any negative impact on prices or any other purchasing condition. Also all the other buyers affirmed that the merger had not determined any deterioration in the purchasing conditions.
- 7.68 Overall, the information we have collected indicate that the merger had no negative effects on competition and, hence, that it did not increase prices or decrease output. It can, therefore, be concluded that the merger did not reduce consumer welfare and that its prohibition would not have been a welfare-maximising decision. Hence, we can say that the Commission's decision, as far as the HV/EHV market is concerned, was appropriate.

7.4.2 The market for LV/MV power cables

- 7.69 In this section we perform an analysis of the effects of the merger on the LV/MV power cable market, equivalent to the one just presented above.
- 7.70 We begin by looking at the market shares. In the EU-15, the market share of the merged entity decreased in the years 1999-2003 by 3%, the share of Alcatel remained constant, while other suppliers (e.g. Draka) increased theirs (see Table 7.14). If we consider just Italy (see Table 7.15), which is one of the two countries in which the merging firms were located, we observe a considerable decline in the market share of the merged entity, whereas other suppliers, such as Tratos and Fulgor (a Greek company) improved their position. In the UK, the other country in which the merging firms were located, there was a significant drop in the merged entity market share, while other competitors, such as Draka and Alcatel, gained significant market shares (see Table 7.16).

Table 7.14: Market shares in value of the major suppliers of LV/MV power cables in EU-15 (1999-2003)

EU-15	1999	2000	2001	2002	2003
Pirelli (pre merger)	23.1%				
BICC	9.6%	4.0%	4.0%	3.0%	3.0%
Pirelli (post merger)	28.5%	28.2%	28.2%	25.9%	25.6%
Alcatel/Nexans	20.0%	20.0%	21.0%	21.0%	20.0%
Draka	6.0%	7.0%	9.0%	8.0%	9.0%

Source: Data provided by Prysmian

Table 7.15: Market shares in value of the major suppliers of LV/MV power cables in Italy (1999-2003)

Italy	1999	2000	2001	2002	2003
Pirelli (pre merger)	49.0%				
BICC	21.4%				
Pirelli (post merger)	70.4%	53.1%	48.9%	44.4%	41.5%
Alcatel/Nexans	16.0%	18.0%	18.0%	20.0%	20.0%
Tratos	2.0%	5.0%	7.0%	10.0%	10.0%
Triveneta	3.0%	5.0%	6.0%	8.0%	9.0%
Fulgor	2.0%	2.0%	3.0%	4.0%	4.0%

Source: Data provided by Prysmian

Table 7.16: Market shares in value of the major suppliers of LV/MV power cables in the UK (1999-2003)

UK	1999	2000	2001	2002	2003
Pirelli (pre merger)	15.2%				
BICC	26.8%				
Pirelli (post merger)	41.9%	32.5%	34.4%	30.9%	29.7%
Alcatel/ Nexans	5.0%	7.0%	6.0%	7.0%	8.0%
Draka/AEI	15.0%	18.0%	18.0%	17.0%	17.0%
Telefonika	4.0%	6.0%	7.0%	6.0%	6.0%

Source: Data provided by Prysmian

- 7.71 The prices for LV/MV cables declined over the years 1999-2003, as did those of HV/EHV cables, and this reduction has been characterised as strong by the producers involved in our survey. The main cause reported for this reduction has been an increase in competition: new companies, located both in Europe and outside of Europe, started in those years to bid for contracts in the EU driving prices down. The example of the Polish company Telefonika was frequently cited.
- 7.72 However, the effect on prices of the increased competition reinforced a downward trend, which had been induced by a drop in demand. Sales of MV cables reduced considerably over that period (4-5% per year summing to 20% over the whole period), while the contraction in the demand for LV cables was less pronounced. Our survey has revealed that the differences seem to be related to the differences in the customer base. MV cables are mostly purchased by public utilities that operate in the distribution of electricity. Their demand strongly declined over the period 1999-2003, mainly because of the restructuring process that followed the liberalisation of the energy sector. LV cables, instead, are also purchased by companies operating in the building sector, whose demand grew, at least up to 2001.
- 7.73 As far as the costs of production are concerned, the same consideration made for the HV/EHV market apply to the MV/LV market because the input in these two markets are the same.
- 7.74 In conclusion, the evolution of the market for MV/LV cables, over the years 1999-2003, can be summarised as follows:

- prices dropped considerably, both because of an increase in competition and a reduction in demand;
- the volume of transactions decreased, mainly in response to a reduction in demand;
- production costs fell slightly.

7.75 When both prices and quantities fall, it is difficult to express a clear judgment on the net change in consumer welfare. However, the purpose of our analysis is to understand whether the Commission's decision was apt to pursue the goal of protecting consumer welfare with respect to its counterfactual. Our survey showed that the market players consider that the merger did not reduce competition in the LV/MV market and, in particular, that it had no negative effect on prices or other purchasing conditions.

7.76 Actually, according to the opinion of all of the respondents, the market over the years 1999-2003 was characterized by strong and increasing competition, and this, together with the newly introduced EU public procurement legislation, guaranteed that no supplier was able to exercise market power. Hence, from the above, it is possible to conclude that consumer welfare would not have been higher had the merger been prohibited and, therefore, that the Commission's decision was appropriate also with respect to the LV/MV market.

7.5 Conclusions

7.77 This Chapter presents the substantive assessment of the Commission's decision on the BICC-Pirelli merger and shows that the Commission's decision was appropriate and that the only possible alternative available, the prohibition of the merger, would have not protected consumer welfare more.

7.78 Our assessment has been based on an event study, that considered the stock prices of both competitors and customers, and a survey of the key market players both on the supply and demand side. The two methods gave similar results.

7.79 The event study showed that, on average, competitors did not significantly gain from the merger, while costumers did, thus suggesting that the merger had generated an increase in efficiency rather than in market

power. The analysis of the qualitative information and of the data on the evolution of the main market variables collected in our survey confirmed that the two markets experienced a decline in prices and an increase in competition. We did not employ an evaluation method or built a structural model because these two methods did not seem appropriate to the characteristics of the markets under exam.

8 The “assessment of the analysis”

8.1 This Chapter discusses the assessment of the analysis on which the Commission’s decision stands. The purpose of this assessment is to identify and critically evaluate the key arguments on the basis of which the Commission allowed the merger, and it is articulated in three steps:

- the identification of the key arguments on which the decision was based;
- the evaluation of the validity of these key arguments; and
- the evaluation of their completeness.

8.1 Identification of the key arguments

8.2 The identification of the key arguments allows the ex-post evaluation to focus only on those elements that have driven the decision, thus avoiding a repetition of the whole ex-ante analysis.

8.3 To identify the key arguments we have followed the analytical framework adopted by the Commission for its analysis of merger proposals (see Chapter 5) and we have sent a questionnaire to three experts in the field of competition policy (which was based on the template contained in Appendix III).

8.1.1 The Commission’s analytical framework

8.4 The Commission’s analytical framework is contained in two documents, which constitute the building blocks on which the evaluation of mergers is based: the “Notice on the definition of the relevant market⁵²” and the EC Guidelines.

8.5 The analysis of these documents indicates that the merger evaluation performed by the Commission is articulated into three steps:

- 1) the relevant market is defined;
- 2) the possible competitive concerns raised by the merger are assessed; and

⁵² Published in the Official Journal: OJ C 372 of 9/12/1997.

3) if there are competitive concerns, the impact of any possible countervailing factor is considered.

8.6 In chapter 5 we have grouped step 2) and 3) in a single phase that we have called “the competitive assessment”.

8.1.2 The questionnaire

8.7 The other tool we have used to identify the key arguments of the decision is a questionnaire addressed to three experts in the field of competition policy. These experts have been asked several questions, whose purpose was to understand what are, in their opinion, the key arguments on which the Commission based its decision. It is important to remark that these experts have not been asked to evaluate whether the arguments chosen by the Commission were appropriate or not. They have only been asked to identify such arguments.

8.8 The structure of this questionnaire is straightforward: each question refers to an element of the analytical framework discussed above, and the experts are asked to scale the relevance that the Commission attributed to each of these elements, according to their reading of the decision.

8.1.3. The key arguments identified in the Pirelli/BICC decision

8.9 The decision to clear the merger between Pirelli and BICC represents a very interesting example of how the Commission’s analytical framework is implemented. Indeed, this decision shows how the analysis on a merger case can go far beyond the calculation of historic market shares, allowing a wider consideration of the structure of the market in which the firms operate.

8.10 This wider consideration was due to the radical transformation that the markets in the energy sector were undergoing around that time. On one side, the national energy markets were being liberalised and the public utilities, which are among the main customers of power cable producers, were being privatised. On the other side, there was the EU legislative and jurisprudential effort to remove all the barriers still preventing the creation of a single European energy market. It is in this context that the merger was submitted to the Commission (as we can read in the press release of 19th July 2000⁵³).

⁵³ European Commission Press Release: IP/00/800, of 19/07/2000

- 8.11 Our reading of the decision, together with the one done by the three experts, has brought to the identification of several key arguments. In the following subsections we will first discuss the key arguments related to the market definition, and, then, we will discuss the key arguments related to the competitive assessment.

The Key arguments related to the market definition: the product market

- 8.12 In its decision, the European Commission defined two separate markets for power cables, defined according to their voltage: one for LV/MV (low/medium voltage) cables and another for HV/EHV (high/extra high voltage) cables. The identification of two separate markets is based on considerations that relate both to demand-side and supply-side substitution.
- 8.13 On the demand side, the parties claimed that MV and HV cables could be found in similar applications within a distribution system, thus showing a certain degree of substitutability. The Commission, however, pointed out that a single HV cable could only be replaced by several MV cables, which is a more costly and less technically efficient solution. The Commission rejected also the argument related to the presence of “chains of substitutions” between the cables of different voltage⁵⁴. Instead, the Commission’s analysis stressed the existence of three elements indicating the absence of demand side substitution between LV/MV and HV/EHV power cables:
- the different intended use: while HV/EHV power cables were mainly used by national grid operators for the transmission of electricity, LV/MV cables were used by regional and local utilities for the distribution of electricity, as well as by companies operating in the transport and in the building industries;

⁵⁴ In the process of defining a market, two products that are not direct substitutes can at times be included in the same market. This happens when product B, for example, is a direct substitute to products A and C, but C is not a direct substitute to A and vice versa. There is then a ‘chain of substitution’ running from A to B to C. Despite not being direct substitutes, A and C may, in some instances, be considered to be in the same market if they are constrained by their common relationship with B.

- the freedom of choice: customers are not free in their choice of voltage levels, since this is determined by the configuration of the existing grid;
- the different frequency and nature of transactions involving these cables: HV/EHV power cables were bought on a project by project basis, together with all the accessories necessary for the implementation of the project. LV/MV cables were, instead, purchased more regularly by the customers, separately from the accessories, on a weekly or even daily basis.

8.14 On the *supply side*, the Commission argued that there was not enough substitutability to compensate for the absence of demand-side substitutability. The Commission stated that it might be possible for a producer of HV cables to set up a production line for LV/MV cables within a reasonable time and with limited costs. However, it claimed that the same did not hold true in the opposite direction. Moreover, the Commission held that converting existing facilities from the production of HV cables to that of LV/MV, or viceversa, would be very costly, because of the loss of efficiency this switch would impose on the machinery.

8.15 In Box 8.1 we report the factual assertions on which the Commission based its decision to define two separate markets for power cables.

Box 8.1: Key arguments on the relevant product market

Factual assertions relating to the demand-side substitution:

1. A HV cable can be replaced by several MV connections , but this is a more costly and less technically efficient solution.
2. Customers are not free in their choice of voltage levels, since this is determined by the configuration of the existing grid.
3. HV/EHV and LV/MV power cables have different uses.
4. The frequency and nature of transactions are different:
 - HV/EHV cables are bought directly from manufacturers on a project by project basis, through tenders, while

- LV/MV cables are bought also from distributors and wholesalers, both through tenders and more frequent “spot” transactions.

Factual assertions relating to the supply-side substitution

- 1 It is not possible for a producer of LV/MV cables to set up a new production line for HV/EHV cables within a reasonable time and with limited cost.
2. Converting the existing production facilities to the production of cables of a different voltage would determine a considerable loss in efficiency.

The Key arguments driving the market definition: the geographic market

- 8.16 Also the geographic market definition plays a key role in the Commission’s decision. The identification of a EU wide market for both HV/EHV and LV/MV power cables was fundamental, since it defined the identity of the competitors of the merging firms and, thus, shapes the overall competitive assessment.

The HV/EHV market

- 8.17 The definition of a EU-wide market was based on three essential elements:
- the presence of many EU-based producers able to compete for the award of supply contracts in all member states;
 - the European legislation on public procurement procedures; and
 - the existence of growing intra-community trade flows.
- 8.18 In its analysis of the geographic dimension of the HV/EHV market, the Commission stressed the absence of standardisation of these cables at the EU level. HV/EHV cables were designed on a project by project basis, according to the specifications required by the customers. However, the lack of standardisation was not found to be an element able to impede effective competition between producers located in different European countries. Indeed, the Commission noticed that all the main HV/EHV cable producers (NKT, ABB, Alcatel and Sagem) and some second tier

manufacturers located around the continent were able to meet the necessary certification requirements for any project tendered in Europe.

- 8.19 In its decision, the Commission stated that “utilities can purchase Community-wide”⁵⁵. This was largely due to the EC procurement directives, in particular, Council Directive 93/38/EEC¹³ of 1993, that disciplines the procurement procedures of firms operating in several sectors, including the energy one. This directive establishes the principle of no discrimination among different member states’ suppliers and “legally requires utilities to tender their cable requirements on a European basis through publication in the Official Journal”.
- 8.20 In spite of this regulation, the Commission’s analysis revealed that in most EU countries the winning bidders were still the traditional national suppliers. This was attributed to the extremely low prices prevailing in the market. However, what really mattered, in the Commission’s view, was that in case of a price increase above the competitive level by local producers, no obstacles would have prevented customers to switch their orders to firms located in different EU countries. This was made possible also by the general overcapacity characterising the market for HV/ EHV power cables.
- 8.21 The final argument brought by the Commission to support its geographic definition of the HV/ EHV power cables market was the growing size of intra-community trade flows⁵⁶. In 1999, 20.8% of total consumption in Western Europe was imported, while 27% of total production was exported. The upward trend in the levels of these flows was attributed to the absence of barriers to entry, to the low impact of transport costs and to the (de)regulation of the electricity market⁵⁷. The general trend, however, could not hide the remarkable differences that still existed among countries. For example, the level of imports over consumption was 47% in the UK and 9% in Italy. Nonetheless, this heterogeneity was due, in the Commission’s view, to the different speed of the national deregulation processes.

⁵⁵ Decision, page 11.

⁵⁶The data reported by the Commission refer to trade flows of power cables, without a differentiation between the two markets.

⁵⁷ The regulation of energy utilities, mostly in the form of price-cap mechanisms for setting the tariffs, had led them to bargain more aggressively with their cables suppliers, and to look around Europe in order to find more competitive prices.

- 8.22 A comparison that is commonly performed in order to establish the geographic boundaries of a market is between the price levels of different countries. In the *Pirelli/BICC* decision, however, such a comparison was considered meaningless by the Commission, since prices for power cables were found to depend strongly on the quantity purchased and on the different specifications contained in each tender. For this reason, the existing price differentials between the European countries would not justify of a definition of separate national the markets for EV/EHV cables.
- 8.23 In Box 8.2 we report the factual assertions and logical propositions on which the Commission based its decision to define a EU wide market for HV/EHV power cables.

Box 8.2: Key arguments on the relevant geographic market (HV/EHV)

Factual assertions:

1. The lack of standardisation at the EU level does not represent an obstacle for many EU-based producers to compete for the award of supply contracts in all member states;
2. The existence of a European legislation on public procurement procedures guarantees that there is no discrimination between suppliers from different member states;
3. The fact that in most EU countries the winning bidders are mostly national suppliers is attributed to the extremely low prices prevailing in the market;
4. There exists an upward trend in intra-community trade flows.
5. Transport costs have a very low impact on the overall production costs.
6. Prices for power cables depend strongly on the quantity purchased and on the different specifications contained in each tender.

Logical proposition:

7. The existing price differentials between the EU countries do not justify the definition of separate national geographic markets.

The LV/MV market

- 8.24 The identification of a EU wide geographic market for LV/MV cables was based on three elements:
- the significant advance in the harmonisation of product standards:
 - the European legislation on public procurement procedure
 - the size of the intra-community trade flows
- 8.25 The process of standard harmonisation started in the 1980s as a major building block for the creation of a single European energy market and advanced rapidly through the 1990s. At the time of the decision, the Commission acknowledged that there were European Norms (EN) that covered most types of LV and MV power cables, and that 90% of these standards had been implemented at the national level less than one year after their adoption at the EU level. In addition, the presence of national specifications, besides the EN, was not considered a barrier to entry for potential competitors. This was proved by the presence of several first tier and second tier producers which were able to supply the major European utilities.
- 8.26 As far as the European legislation on public procurement and the intra-community trade flows are concerned, the considerations made with respect to the HV/EHV market apply also to the LV/MV one, hence we shall not repeat them again.
- 8.27 The factual assertions and logical propositions on which the Commission based its decision to define a EU-wide market for LV/MV cables are the same as the one presented in Box 8.2 for the HV/EHV market, except for assertion 1. That assertion is replaced by the one contained in Box 8.3:

Box 8.3: Key arguments on the relevant geographic market (LV/MV market)

1. The advanced process of standard harmonisation for LV/MV cables allows competition between suppliers from different member states.

The key arguments driving the competitive assessment

- 8.28 The competitive assessment performed by the Commission in order to decide whether or not to authorise a merger amounts to considering the impact of that merger on the development of the relevant market(s) and its effect on competition and, hence, on consumers.
- 8.29 The assessment requires:
- a competitive assessment in the absence of countervailing factors;
 - a consideration of the possible countervailing factors.
- 8.30 Hence, we started from the exam of those characteristics of the market that might raise concerns of possible unilateral and coordinated effects arising from the merger, and then we considered whether the presence of buyer power, the possibility of new entry and merger-specific efficiencies could dispel the concerns raised in the first part of the assessment.
- 8.31 In the rest of this section we discuss separately the arguments driving the competitive assessment in the HV/EHV and the LV/MV market, and for each market, following the EU Guidelines' framework, we split the analysis of the competitive concerns from that of the countervailing factors.

Competitive assessment of the HV/EHV market: competitive concerns

- 8.32 The merged entity would have acquired, in the HV/EHV market, a post-merger market share of 45-55%, while the next player, Alcatel, had a market share of 10-20%. The Commission raised concerns both about Pirelli/BICC gaining a position of single dominance and about it acquiring a collective dominant position together with Alcatel.
- 8.33 A first general argument used by the Commission to dispel this competitive concern was the transitional state of the power cable industry. This argument does not specifically address the issue of unilateral or coordinated effects.
- 8.34 The existence of enough credible competitors was the main argument used by the Commission to dispel the concern of possible unilateral effects. The peculiarity of the mode of competition was instead the crucial argument to reject the likelihood of a joint dominant position.

The transitional state of the power cables industry

- 8.35 Power cable markets used to be “closed” markets, in which national suppliers covered the entire domestic demand, without competitive pressure from foreign producers. Public utilities tended to favour domestic suppliers and showed scarce price sensitivity, because of the absence of tight price regulation and of the marginal impact of power cables on their total capital expenditure. In addition, in some countries, utilities tended to “over-engineer” their networks.
- 8.36 With the gradual liberalisation of the European energy markets, things have started to change. Utilities have undergone a process of deep restructuring; most of them have been privatised, and in most countries the transmission, distribution and the maintenance activities have been separated. Besides, tight regulatory regimes for retail tariff setting have been introduced, in the form of price-cap mechanisms.
- 8.37 The introduction of these price-cap mechanisms, whereby efficiency gains above a set level accrue to the utilities, generated the incentives for more aggressive bargaining. The Commission cited the example of the RPI-X price controls in the UK, as most European regulation have been modelled on the British one. This type of price controls, which require the average retail price to decrease in real terms by an annual rate (X) less the retail price index (RPI), placed strong incentives for the utilities to cut costs.
- 8.38 The introduction of these regulatory mechanisms, together with the high level of market saturation (most member states had by then a well developed electricity system), brought about a decrease in the demand for power cables, leading to significant over-capacity. Prices started to decline and profit margins shrank.
- 8.39 This was considered by the Commission crucial to understand the rationale of the merger. The merging firms were to gain efficiencies through better capacity utilisation and through the consolidation of the production of specific cable types in dedicated plants.

The existence of enough alternative and credible suppliers

- 8.40 In the competitive assessment of the HV/EHV market, a crucial element which led to the decision to clear the merger was the presence of a sufficient number of competitors of the merging firms.

- 8.41 The Commission identified four main suppliers, ABB, Alcatel, NKT and BRUGG, as credible competitors of the merged entity in any European based tender for HV/EHV cables. Other companies, like Fulgor, were also considered as potentially able to enter the competition on an equal footing, as long as sufficient orders were placed to justify the necessary investments to expand their capacity.
- 8.42 The credibility of these competitors rested on their adequate “technical capabilities, production capacity and quality certifications to supply the major European utilities with know-how intensive HV/EHV cables in large quantities”.
- 8.43 It may be questioned whether four competitors are enough to ensure effective competition; the Commission believed that they were, especially in the light of their relative strength deriving from their international dimension.
- 8.44 It is important to stress that the Commission considered the competitors to be credible despite their low market shares, which were significantly smaller than the one of Pirelli/BICC. The Commission was convinced that the market shares of the competitors did not reflect their competitive strength. The extremely low level of the prices had led most firms to concentrate either on overseas markets, or on the traditional home countries. However, in presence of a price rise, they would have not had any difficulty in supplying the customers in other EU countries, especially because of the large spare capacity that characterized the market.

The mode of competition

- 8.45 The main argument used by the Commission to reject the likelihood of a joint dominant position of Pirelli/BICC and Alcatel was the peculiarity of the mode of competition.
- 8.46 The market for HV/EHV cables was a bidding market, in which customers, mainly large national utilities, placed public, EU-wide tenders, disciplined by EU directives. A bidding market is characterised by large single-unit auctions, which do not take place frequently and in which contracts are awarded according to the “winner takes all principle”. According to the European legislation, contracting entities have the obligation to publish on the Official Journal all the contracts they intend to award, and the award

notices in which they indicate the details of the tender procedure, the name of the participants to the auction and the name of the winner.

- 8.47 The Commission identified this mode of competition as a key factor able to prevent the creation of a collective dominant positioning in the HV/EHV market, since it generated the incentives for aggressive competition between Pirelli/BICC and the other producers. Infrequent, large-valued, tenders and the “winner takes all” principle guarantee, in fact, that the benefits from cooperation, tacit or explicit, are outweighed by the gains deriving from winning a single contract.
- 8.48 Another element characterising the tenders in the market for HV/EHV power cables, which was deemed essential to prevent coordinated behaviours, was the lack of price transparency. The prices of HV/EHV cables were not easy to interpret and confront since they included an important element of services, civil works and accessories. When firms coordinate their behaviours, they need to be able to monitor each other, in order to realise if someone is deviating from the terms of coordination. The possibility of monitoring increases with the transparency of the market. This is the reason why the lack of price transparency in the HV/HEV power cables market was deemed to reduce the scope for coordinated behaviours.
- 8.49 In Box 8.4 we list the key factual assertions and logical propositions that drove the Commission’s analysis of the competitive concerns raised by the merger.

Box 8.4: Key arguments on the competitive concerns (HV/EHV market)

Factual assertions :

1. Regulatory regimes in the form price-cap mechanisms have been introduced.
2. These regulatory regimes have brought a reduction in demand and have pushed prices down.
3. There are at least four credible competitors of Pirelli/BICC in the HV/EHV market.

4. These competitors ensure effective competition.
5. The market for HV/EHV cables is a bidding market:
 - each transaction has a large value;
 - transactions are infrequent;
 - contracts are awarded according to the winner takes all principle.
6. Prices are not transparent.

Logical propositions:

1. Price cap mechanisms place strong incentives for customers to reduce costs through a reduction in investments and more aggressive bargaining.
2. In a bidding market coordinated behaviours are unlikely to emerge
3. The lack of price transparency makes coordinated behaviour unlikely

Competitive assessment of the HV/EHV market: countervailing factors

- 8.50 The Commission's decision stressed the existence of significant buyer power in the HV/EHV market. The concept of buyer power refers to the bargaining power of the buyers vis-à-vis the sellers and it generally descends from the buyers' size and their commercial significance for the seller, as explained in the Commission's Guidelines.
- 8.51 In the HV/EHV market, the existence of buyer power argument was linked to the fact that the demand side was dominated by large national electric utilities, like ENEL in Italy, NGC in the UK or EDF in France. These companies absorbed almost the entire demand of HV/EHV power cables, purchasing large shares of the overall sales of the merging firms. ENEL, for example, represented, at the time of the decision, between 80% and 100% of BICC's sales and between 70% and 80% of Pirelli's sales to utilities in Italy.

- 8.52 However, in its decision, the Commission stressed how utilities faced no significant constraints in switching to different suppliers in the presence of an anticompetitive rise in the prices of cables. The main European utilities had indeed declared to the Commission that they would have not hesitated to move to new suppliers if confronted with a 5-10% increase of the price level. The buyers had also confirmed that even existing contractual relationship did not represent an obstacle if they wanted to rapidly change supplier: indeed, given their significant contractual power, they had already renegotiated their contracts in the past, once they had realised that market prices were going down during the contract term.
- 8.53 National utilities could also exercise strategically their buyer power by facilitating the entry of new suppliers or the expansion of small cable producers. The Commission cited the example of Fulgor, a relatively small Greek company, whose entry in the UK market had been encouraged by a British utility.
- 8.54 The Commission recognised that buyers must be willing to exercise their bargaining power, otherwise the whole argument would collapse. In this respect, the analysis focused on the need to increase their cost efficiency and on their incentives to bargain aggressively in order to reduce costs. The Commission considered the introduction of price-cap mechanisms as decisive, as explained in paragraphs 8.37 to 8.39.
- 8.55 In Box 8.5 we report the main factual assertions that support the buyer power argument in the Commission's decision.

Box 8.5: Key arguments on the countervailing factors (HV/EHV market)

Factual assertions :

1. The demand side of the market is dominated by large national utilities that absorb almost the entire demand of HV/EHV cables.
2. National utilities face no significant constraints in switching to different suppliers.
3. National utilities can also exercise strategically their buyer power by facilitating the entry of new suppliers.

Logical propositions:

1. Price cap mechanisms provide the incentive to exercise buyer power.
2. Strong buyer power is likely to disrupt any attempt to tacitly coordinate or to exert market power.

Competitive assessment of the LV/MV market: competitive concerns

- 8.56 The Commission's concerns about the anti-competitive effects of the merger between Pirelli and BICC in the market for LV/MV power cables were only related to the possible creation of a collective dominant position of the merged entity with Alcatel, the second major supplier of LV/MV power cables. Together, these two firms would have accounted for around 50-60% of the entire market.
- 8.57 The argument on the transitional state of the cable industry, discussed in paragraphs 8.35 to 8.39, applies also to the LV/MV market, hence we will not repeat it. Indeed, the picture given by the Commission about the state of the industry, refers to the "power cable markets", without distinguishing between the two. For this reason, we consider this argument crucial for both markets.
- 8.58 The two main arguments used by the Commission to dispel the concern of possible coordinated behaviours of Pirelli/BICC and Alcatel in the LV/MV markets were related to the mode of competition and to the existence of a wide fringe of competitors.

Mode of competition

- 8.59 The LV/MV market is a "procurement market", in which transactions take place frequently and the value of each single tender is relatively small. Given these two elements, the Commission acknowledged that the individual suppliers could be tempted to cooperate, by bidding less aggressively in order not to risk a rapid decline in prices. In addition, in the LV/MV market, cables and accessories were supplied separately, which eliminated an important source of price ambiguity.

8.60 Nonetheless, the Commission's investigation revealed that the utilities had several ways to counteract the occurrence of colluding behaviours, even in a procurement market. Customers could use framework agreements, or multiyear purchase arrangements, whose purpose is to aggregate demand over a certain period of time. This would increase the value of each batch and consequently generate the incentives for more aggressive competition. They could also use a "bids-for-allocation" process, which consists in offering higher allocations to smaller suppliers in replacement of the existing bigger suppliers; in this way a significant pressure is exercised on the traditional suppliers and competition is enhanced.

8.61 As far as the issue of price transparency is concerned, the Commission noticed how, also in the LV/MV market, price transparency is lacking despite the fact that the tenders relate only to cables, because of the absence of meaningful prices lists and varying customer-defined product specifications.

The existence of a wide competitive fringe

8.62 In the LV/MV power cables market, the existence of a wide competitive fringe was considered by the Commission to be extremely important to the dispel the competitive concerns, especially in the light of the lower strength of other countervailing factors, compared to the HV/EHV market.

8.63 The Commission found that the number of competitors was not restricted to the few big suppliers operating in the HV/EHV production. Indeed, there existed several second tier "credible" manufacturers and also some third tier manufactures, marginal at the time of the decision, but are able to compete in case of a price rise. Furthermore, the Commission stressed how entry in the LV/MV market was relatively easy: the cost of the investments to enter the market were found to be low enough to allow a quick entry.

8.64 In Box 8.6 we report the factual assertions and logical propositions on which the Commission based its analysis of the competitive concerns in the LV/MV market. It did not identify any countervailing factor in this market.

Box 8.6: Key arguments on the competitive concerns (LV/MV market)

Factual assertions:

1. The LV/MV market is a procurement market.
2. Utilities use framework agreements and multi-year purchase arrangements to increase the value of a single transaction.
3. Prices are not transparent since there are no meaningful price lists.
4. There exists a wide fringe of competitors to Pirelli/BICC and Alcatel.

Logical propositions:

1. The lack of price transparency makes coordinated behaviours unlikely.
2. Mechanisms that aggregate demand contrast the emergence of coordinated behaviours.
3. Fringe competitors make a collusive equilibrium unstable.

Conclusive remarks

- 8.65 We have identified several key arguments in the Commission's decision to clear the Pirelli/BICC merger. The first of these arguments is certainly the identification of two separate product markets: this choice has far reaching implications, both for the calculation of the market shares and for the overall competitive assessment, which is different in the two markets.
- 8.66 The identification of a EU-wide dimension of the markets played an important role, as did the acknowledgement of the transitional state of the cable industry, mainly due to the liberalisation process that was taking place in the EU energy sector.
- 8.67 In the HV/EHV market, the mode of competition, namely the existence of a bidding market, was found to be an element able to obstacle possible tacit or explicitly collusive behaviours between Pirelli/BICC and Alcatel. The

mode of competition argument played a role also in dispelling the concerns of collusive behaviours in the LV/MV market, although to a lesser extent.

- 8.68 The nature and strength of the merging parties competitors brought the Commission to state that no serious competitive concern could be raised in both markets. However, in the LV/MV markets it was the great number of competitors that mattered, while in the HV/EHV market it was the relative strength of these competitors and their potential capacity to increase production in presence of anticompetitive behaviours.
- 8.69 A final essential argument used by the Commission to reach the decision to clear the merger was the buyer power held by the big national utilities. This argument applied only to the HV/EHV market, since national utilities employ almost exclusively these cables for their activities.

8.2 Evaluation of the validity of the key arguments.

- 8.70 In this section we perform the second stage of the methodological assessment of the Pirelli/BICC decision, that consists in evaluating the validity of the key arguments in the Commission's decision, in the light of the additional information generated by the development of the relevant markets. As we have stressed in Chapter 5, this process is similar to the one originally performed by the Commission in evaluating the effects of the merger, but it is now limited to the key arguments identified in the decision.
- 8.71 The empirical tools employed for the evaluation of the validity of the key arguments are similar to the ones employed by the Commission in the ex-ante evaluation. Our analysis is based on the survey of market players described in section 7.2 of Chapter 7. From the questionnaires addressed to customers and producers we have traced the evolution of the markets between the years 1999-2003, and we have derived the information necessary to examine the validity of the key arguments in a dynamic perspective. These information, supplemented by those obtained through the telephone interviews and those publicly available, have allowed us to build a clear picture of the power cables markets.
- 8.72 The time horizon we have considered for the assessment includes the two years before the merger and the three years after it (i.e. the period from 1999 to 2003). The decision to collect and analyse information also for the three years after the merger derives, not only from the need to test those

arguments that implicitly or explicitly contained a prediction, but also to examine the overall stability of the Commission's analysis. This is important, because, in the presence of substantial market changes in the years following the merger, an ex post evaluation should try to understand if the Commission had the tools to forecast such changes and their implications for the competitive assessment.

- 8.73 The structure of this section is the same as the one dedicated to the identification of the key arguments: we first deal with the market definition, then we separately examine the key arguments related to the market for HV/EHV power cables and the ones related to the market for LV/MV power cables.

8.2.1 The key arguments driving the market definition: the product market

- 8.74 The Commission's decision identified two different product markets, one for LV/MV power cables and another for HV/EHV power cables. In order to assess the validity of this market definition, we have investigated whether there was demand-side and/or supply-side substitutability between the two types of cables. We have considered these issues in a dynamic perspective to see if possible modifications of the product market definition occurred over the period 1999-2003, due, for example, to the introduction of technological innovations.

Demand side substitution

- 8.75 The Commission's claim that there was no demand-side substitution is based on four factual assertions. The validity of all of them has been checked through our survey.

Factual assertion 1 and 2:

- *A HV cable can be replaced by several MV connections, but this is a more costly and less technically efficient solution.*
- *Customers are not free in their choice of voltage levels, since this is determined by the configuration of the existing grid.*

- 8.76 All the producers involved in our study have indeed confirmed that substituting one HV cable with several MV connections could have been theoretically possible, but that it would have entailed major inefficiencies.

These inefficiencies arose because transmission grids were specifically configured for the use of HV/EHV cables. The use of MV cables, that transport less energy than HV cables, would have entailed energy losses and lead to the over-heating of the lines.

Factual assertion 3:

- *HV/EHV and LV/MV power cables have different uses.*

8.77 Our analysis has confirmed that LV and MV cables were mainly used for the distribution of electricity⁵⁸, whereas HV and EHV cables were used for the transmission of electricity. Our survey has indeed shown that all those utilities that, during the relevant period, were operating in the transmission of electricity employed exclusively HV and EHV cables and did not generally consider the possibility to substitute this kind of cables with lower voltage ones⁵⁹.

Factual assertion 4:

- *The frequency and nature of the transactions are different*

8.78 Our analysis has indeed confirmed that the two power cables market differed with respect to three main dimensions:

- the average amount of the single transaction, which was significantly higher in the HV/EHV market,
- the frequency of transactions: HV/EHV cables were purchased by national utilities through tenders that took place no more than twice in a year, while LV/MV cables were purchased also through daily or weekly spot transactions, and
- the nature of the suppliers: while HV/EHV cables were purchased entirely by manufactures, LV/MV cables were also purchased by distributors and wholesalers.

⁵⁸ LV cables are also used by companies operating in the building and in the transport industry

⁵⁹ The analysis focused on the substitutability between MV and HV cables, since, if any, substitution is possible only between these two types of cables. We have looked only in one direction (from HV to MV), since the substitution of MV cables with HV ones would be evidently inefficient.

Supply side substitution

- 8.79 The Commission argued that there was limited supply-side substitution and that this was asymmetric, in the sense that it was only possible to switch from the production of HV cables to LV/MV cables.
- 8.80 The limited supply-side substitution is based on two factual assertions. The validity of both has been confirmed by the market players involved in our survey.

Factual assertion 1:

- *It is not possible for a producer of LV/MV cables to set up a new production line for HV/EHV cables within a reasonable time and with limited cost.*

- 8.81 The first aspect to notice is that companies producing HV/EHV cables were all also involved in the production of LV/MV cables, whereas the opposite did not hold. This clearly suggests that, while HV/EHV producers possessed the know how and the technology to produce LV/MV cables, the same did not apply to those companies specialising in the production LV/MV cables.
- 8.82 This has been confirmed by our analysis. Our survey indicates that LV/MV cables producers needed to undertake significant investments to set up a production line for producing HV/ EHV cables. This was true for two main reasons:
- first, HV/EHV cables were sold together with a complete system of accessories/services: this implies that producers also needed the facilities necessary to produce the accessories.
 - second, significant investments needed to be done in order to purchase the necessary testing technology. In order to become qualified suppliers of HV/EHV cables, several type tests needed to be passed. These tests might take between one and two years.
- 8.83 The information provided by the surveyed producers allows, thus, to conclude that supply-side substitution was indeed limited and asymmetric.

Factual assertion 2:

- *Converting the existing production facilities to the production of cables of a different voltage would determine a considerable loss in efficiency*

8.84 For the reasons already explained above, LV/MV producers could not convert their facilities to the production of HV/EHV cables within a reasonable time. This could have been done by HV/EHV producers, but it would have entailed major inefficiencies.

Summing up

8.85 The evidence collected in our survey confirms the validity of the Commission's product market definition. LV/MV and HV/EHV power cables belonged, at the time of the decision, to two separate markets, because of the lack of demand side substitution and the limited (asymmetric) supply side substitution. This market definition remained valid also for the years immediately following the merger.

8.2.2 The Key arguments driving the market definition: the geographic market

HV/EHV market

8.86 The Commission's decision identified a EU-wide market for HV/EHV power cables. In order to assess the validity of this geographic market definition contained in the Commission's decision, we have followed a twofold approach. First, we have looked at the transactions records provided by the customers for the period 1999-2003; and, then, we have analysed the data collected in our surveys, together with those publicly available, in order to ascertain the presence of barriers for Community-based suppliers to participate to tenders in all member states.

8.87 All the factual assertions and logical propositions have been verified, except the one on trade flows, as data on trade flows are not available. However, we do not consider this information to be crucial to validate the Commission's geographic market definition. The detailed information we have collected on the tenders and the asymmetric nature of the information provided by the trade flows are sufficient for us to claim that the geographic market definition reached by the Commission was correct. The asymmetric nature relates to the fact that, while the existence of significant trade flows indicates the geographic boundaries of a market,

the reverse is not true. Indeed, the lack of trade flows may be determined by the competitive environment in which the firms operate, independently of the geographic boundaries of the market.

Factual assertion 1:

- *the lack of standardisation at the EU level does not represent an obstacle for many EU-based producers to compete for the award of supply contracts in all member states.*

- 8.88 In the market for HV/EHV power cables, there were no set product standards. Cables were designed on a project-by-project basis according to the customers' needs. Each project usually included the supply of accessories and services; these may vary according to the national configuration of the transmission networks. However, our analysis confirms the Commission's assertion, according to which different national specifications did not constitute a barrier to entry. The producers involved in our survey confirm that the presence of national standards did not impede them to supply their products around the European Union, and that the capacity to comply with national specification has actually increased over the relevant period. Indeed, all the main multinational cable producers, regularly participated to the major European tenders⁶⁰.
- 8.89 We have examined the contracts awarded by a sample of customers spread around Europe, with particular attention to Italy and the UK, the merging firms' countries. We have checked which companies participated to the tenders and which won them⁶¹. In addition, in order to understand the evolution of the markets over the period considered, we have collected information on the number and the nationality of the new suppliers.
- 8.90 From our analysis we derived several indications about the degree of openness of the HV/EHV cables market. The picture seems indeed very clear. On the demand side, there were large and sophisticated customers who issued tenders EU-wide. Several suppliers located around Europe regularly participated to such tenders, among them the most relevant companies were Prysmian, Nexans, ABB, General Cables and NKT. We

⁶⁰ Among them we find companies like Prysmian, NKT cables, General Cables, ABB and Nexans.

⁶¹ For the HV/EHV, we collected information about the calls for tenders made during the relevant period. For the LV/MV, we collected both information about the tenders and about the purchases made through internal procedures, that is outside any tender procedures.

did not find any evidence of discrimination in the award of these contracts. In most member states foreign companies participated and won contracts, which clearly suggest that the market had a European dimension.

- 8.91 The only exception to the above statement seems to be Italy, where Prysmian and Nexans Italia, both Italian-based companies, satisfied almost the entire demand for power cables. Other companies did occasionally participate to tenders, but, in the period considered, they were not able to win any significant contract.

Factual assertion 2:

- *The existence of a European legislation on public procurement procedures guarantees that there is no discrimination between suppliers from different member states.*

- 8.92 Another crucial factor for a European-wide market definition is the EU legislation on public procurement in the sectors of water, energy, transports and postal service. The Commission's decision refers to Directive 93/38/EEC, as amended by Directive 98/4/EC. These directives discipline public procurement in those sectors and require contracting entities to ensure that there is no discrimination between suppliers from different member states. According to these directives, utilities are legally required to tender all their cable requirements above a certain threshold on a European basis through publication of the tenders in the *Official Journal of the European Communities*.

- 8.93 In recent years, the Commission has put much effort in promoting the reorganisation of the legislation on public procurement. This process has culminated in the approval of Directive 2004/17/EC. The Directive reiterates the principle of non-discrimination between suppliers from different member states, emphasizing that technical specifications cannot be used to create obstacles to competition. In particular, utilities have to refer to national standards that transpose EU standards, EU technical approvals, and international standards. Several norms contained in the Directive detail the transparency criteria that need to be fulfilled by the contracting entities, which are aimed at avoiding discrimination.

- 8.94 These directives played a key role in the HV/EHV market. Indeed, our survey confirms that almost 100% of transactions in this market took place within the EU framework, given their high value. Customers sometimes

adopted prequalification mechanisms in order to restrict the number of suppliers participating to each single tender and simplify the award procedure, but always within the procurement rules set out in the above-mentioned EU Directives.

Factual assertion 3:

- *The fact that in most European countries the winning bidders are mostly national suppliers is attributed to the extremely low prices prevailing in the market.*

8.95 As we have stressed above, the exam of the tenders issued in the period 1999-2003 showed that the market for HV/EHV cables was open and competitive, and that the degree of openness increased over the years. This proves the validity of the Commission’s statement. However, in some cases, contracts were awarded almost exclusively to suppliers located within the same state, as in the case of Italy.

8.96 In order to understand what were the reasons for this phenomenon, we have explicitly asked in our survey of the customers what factors drove their choice of the supplier. Our questionnaire contained a specific question aiming at understanding if the location of the supplier played a role in such choice, and how relevant this was compared to a set of other factors, which included the price of the products, their physical properties, the reputation of the supplier and the timing of the delivery.

8.97 From the answers to this question it resulted that in the HV/EHV market the location of the suppliers played no role in shaping the buyers’ choices: 85% of the companies surveyed attributed no importance at all to the location of their suppliers.

8.98 In Table 8.1 we provide the average percentages attributed by the customers to each of the factor indicated in the questionnaire:

Table 8.1: Factors driving the choice of suppliers by customers (HV/EHV market)

Price	Physical properties of the products	Location of the supplier	Reputation of the supplier	Timing of delivery	Other	Total
79%	9%	1%	1%	7%	2%	100%

Source: Lear on data collected through the questionnaire

- 8.99 With regard to Italy, the Italian customers involved in our survey attribute the choice of the same Italian supplier (Prysmian) in almost all the tenders to the fact that this company proved always the most competitive by offering the lowest prices.

Factual assertion 5:

- *Transport costs have a very low impact on the overall production costs.*

- 8.100 The impact of transport costs on the overall price was relatively low. From our survey, we have estimated an average incidence of transportation costs over the value of the product of 3%. These estimates are consistent with the ones contained in the Commission's decision, and confirm that transport costs did not constitute an impediment for suppliers who wanted to bid for contracts in other member states.

Factual assertion 6:

- *Prices for power cables depend strongly on the quantity purchased and on the different specifications contained in each tender.*

- 8.101 The validity of this assertion has been already underlined in section 8.1, in which we described the reasons that do not allow to interpret the prices for power cables and, therefore, to determine a clear picture of their trend

Logical proposition:

- *The existing price differentials between the EU countries do not justify the definition of separate national geographic markets.*

- 8.102 From factual assertion 6, the Commission derived the conclusion that the existing price differentials between the European countries cannot lead to the definition of separate national markets. This logical proposition is valid because prices depend so strongly on the quantities purchased and on the specific features of each project, that it would be meaningless to base the geographic market definition on a cross-country comparison of prices.

Summing up

- 8.103 In conclusion, the evidence collected confirms the validity of the Commission's key arguments. The presence of supply-side and demand-side substitution provides direct evidence of the EU dimension of the HV/EHV market, both at the time of the decision and in the years that immediately followed the merger. We should also notice that our survey indicates that the geographic boundaries of the market might further enlarge in the future, as several non-EU companies, mainly located in eastern Europe, Asia (China, South Korea), and in the Middle-East, have recently entered the competitive arena.

LV/MV market

- 8.104 The Commission's decision identified a EU-wide market for LV/MV power cables. In order to assess the validity of the geographic market definition contained in the Commission's decision, we have followed the same approach adopted for the HV/EHV market. We have examined the record of the transactions relative to the period 1999-2003 provided by the customers that responded to the survey and we have analysed the quantitative data collected in our surveys, together with those publicly available to ascertain the presence of national barriers.
- 8.105 Also for the LV/MV market, we have verified all factual assertions and logical propositions with the exception of the one related to trade flows.

Factual assertion 1:

- *The advanced process of standard harmonisation for LV/MV cables allows competition between suppliers from different EU member states for the same contracts.*

- 8.106 The process of standards harmonisation in the market for LV/MV power cables was in an advanced stage at the time of the Pirelli/BICC decision, and we found no indications during our analysis that this process reverted in the years following the merger. LV/MV cables have been object of a continuous effort by the European Standards Organisations, which have produced European Standards and Harmonised Documents, with the purpose of consolidating a single European energy market⁶².

⁶² European Standards (EN) and Harmonised Documents (HD) are documents that have been ratified by one of the 3 European Standards Organizations, CEN, CENELEC or ETSI. They are designed and created by all interested parties through a consensual

8.107 Besides European and International Standards, each utility may require its own specifications. Nevertheless, an analysis of the supply side of the market has revealed that all the main producers located in Europe possessed the technical capability, the production capacity and certifications required to satisfy the needs of the major European customers. Among these producers there were companies such as Prysmian, NKT cables, General Cables, ABB and Nexans, all large multinational companies operating in both markets. Alongside these first tier manufacturers, there were several second tier manufacturers which also possessed the ability to satisfy requests from the whole of the EU.

Factual assertion 2:

- *The existence of a European legislation on public procurement procedures guarantees that there is no discrimination among suppliers from different member states.*

8.108 The considerations made above with respect to the European legislation on public procurement apply also to the market of LV/MV power cables. However, it has to be borne in mind that this legislation had a lesser impact in the LV/MV market, given that a significant amount of purchases took place outside the procedures envisaged by the EU legislation because of their low value.

8.109 In order to verify if the standardisation process and the EU legislation guaranteed an effective participation of suppliers from different member states in all the tenders issued in the EU, we have collected the transaction records of the customers involved in our survey.

8.110 From the analysis of these records we have derived a clear indication that the LV/MV market was relatively open. Even though we have found that the majority of the winners were suppliers based in the buyer's country, we have also found that several companies located in other member states participated to tenders. Among these companies we found those already mentioned when discussing the HV/EHV market and some companies that specialise only in the production of LV/MV cables, such as Draka or Tratos.

process. ENs carry with them the obligation to be implemented at national level by being given the status of a national standard and by withdrawal of any conflicting national standards. HDs transposition into national standards is instead voluntary.

- 8.111 In addition, we have noticed that the demand side in the LV/MV market had a more heterogeneous composition than the one in the HV/EHV market. Among the main customers there were local utilities and companies operating in the energy industry, in the transportation industry and in the building industry.
- 8.112 If we consider public local utilities, especially those that purchased significant amount of cables through tenders, it seems appropriate to define the EU market definitely as open during the period from 1999 to 2003. A major British company involved in our survey, for example, reported an increase in the amount of contracts awarded to foreign suppliers. In this case Italy did not constitute an exception, as the main Italian utilities operating in the distribution of electricity purchased cables from suppliers located all around Europe.
- 8.113 However, when we have considered the transactions records of the companies operating in the energy and in the transportation sectors, we have noticed that these companies tended to buy the cables outside of any tender procedure and almost exclusively from national suppliers. However, the relative importance of these companies with respect to the overall demand for LV/MV power cables was small.

Factual assertion 3

- *The fact that in most European countries the winning bidders are mostly national suppliers is attributed to the extremely low prices prevailing in the market.*

- 8.114 The analysis of the transaction records has shown that, over the relevant period, the European utilities increased their purchases from suppliers located outside their home country and where the suppliers remained national, this was generally due to the relatively low amount of cables purchased.
- 8.115 In order to understand if the location of suppliers did matter in the choice of the suppliers, we have asked customers of LV and MV cables what factors drove their choices: 75% of the companies surveyed claimed that they did not attribute any role to the location of suppliers when choosing how to award the contract to, while the remaining 25% attributed to the location only a minor importance, between 5%-10%.

8.116 In Table 8.2 we provide the average percentages attributed by the customers to each of the factors that could determine their choice, which we indicated in the questionnaire:

Table 8.2: Factors driving the choice of suppliers by customers (LV/MV)

Price	Physical properties of the products	Location of the supplier	Reputation of the supplier	Timing of delivery	Other	Total
73%	13%	2%	5%	6%	1%	100%

Source: Lear on data collected through the questionnaire

Factual assertion 5:

- *Transportation costs have a very low impact on the overall production costs.*

8.117 The impact of transportation costs on the overall price of LV/MV power cables was low. Our survey suggests that transportation costs accounted for 3% of the overall price of cables, exactly as in the case of HV/EHV cables.

Factual assertion 6:

- *Prices for power cables depend strongly on the quantity purchased and on the different specifications contained in each tender.*

8.118 The considerations made on the prices for the HV/EHV market apply also to the LV/MV market. Hence, we confirm the validity of all the factual assertion and of the logical proposition related to it.

Summing up

8.119 In conclusion, the evidence collected confirms the validity of the Commission's geographic market definition. The presence of supply-side and demand-side substitution are direct evidence of the European dimension of the LV/MV market. This definition was certainly valid at the time of the decision, and remained valid for the years following the merger.

8.2.3 The key arguments driving the competitive assessment: competitive concerns

HV/EHV market

8.120 The factual assertions and the logical propositions driving the first phase of the competitive assessment of the HV/EHV market were related to three general arguments:

- the transitional state of the power cables industry,
- the nature and strength of competitors,
- the mode of competition

The transitional state of the power cables industry

8.121 With respect to the transitional state of the cables industry, we have identified two factual assertions:

- *Regulatory regimes in the form price -cap mechanisms have been introduced across the EU.*
- *These regulatory regimes have brought a reduction in demand and have pushed prices down.*

8.122 As described above, the liberalisation and, in particular, the introduction of new regulatory regimes in the electricity sector determined a sensible decrease in the demand for power cables and a more aggressive buying behaviour on the part of electric utilities. These factors, in turn, were causing the erosion of the profit margins of the power cables' suppliers. In this context, the merger was interpreted by the Commission as part of a consolidation process aimed at a better utilisation of capacity, hence, at an increase in efficiency.

8.123 The argument used by the Commission contains an implicit forecast on the future developments of the cable markets. The Commission believed that the price-cap mechanisms would have been extended to most European countries. As a result, the downward trend in the demand would have continued, together with the consolidation process on the supply side.

8.124 In order to verify the validity of these arguments, we have focused on: the evolution of the regulation of public utilities operating in the transmission

and distribution fields, the demand trend over the relevant period, and the evolution of the supply side of the market.

The regulation of public utilities operating in the transmission and distribution fields

- 8.125 It would be difficult to summarise the evolution of the regulatory framework in the transmission and distribution sectors, since each country has made its own choices within the general framework provided by the European legislation. Two elements deserve, however, special attention, given the purpose of our analysis: the changes in the third party access regulation and the evolution of tariff setting mechanisms.
- 8.126 Third party access regulation (TPA) refers to the set of norms that discipline the access of third parties to the transmission and distribution networks. The European Directive 96/92/EC established that Transmission System Operators (TSO) and Distribution System Operators (DSOs) had to provide non discriminatory TPA to their lines. Countries could choose between a regulated TPA and a negotiated TPA. Under a negotiated third party access method, each user contracts the term for the access to the network with the operator, whereas in a regulated framework the relevant national regulatory authority fixes the access tariffs. The EU Commission indicated this method as more apt to an efficient and fair allocation of the access
- 8.127 This process evolved further in the period considered in our analysis, with the approval in 2003 of the Second Electricity Directive⁶³. Among the reasons that motivated the adoption of a second directive there was the existence in some countries, as Germany, of negotiated TPA regimes, which were seen as an obstacle to the creation of a fully competitive market. In the field of transmission and distribution, the new regulatory framework, thus, imposed “a regulated third party access” regime, under which third parties have a right to access the network in a non-discriminatory manner based on published tariffs.
- 8.128 The evolution of the retail tariff regulation that followed the adoption of regulated TPA is essential to understand the changes in the relation between customers and producers in the power cable markets. It is the introduction of the price cap mechanisms that generated the incentives for TSOs and DSOs to reduce costs.

⁶³ Directive 2003/54/EC

- 8.129 A general investigation of the evolution of retail tariff regulation in the EU has shown that most countries have adopted a price cap mechanism, though this has happened at different times. This mechanism provides strong incentives towards cost reductions, as it allows companies to keep any cost savings not explicitly envisaged in the cap itself.
- 8.130 In some countries this kind of mechanism was in force before the Commission's decision, as in the case of UK or Italy⁶⁴, while in others it was adopted after it, as in the case of Denmark⁶⁵ or Germany⁶⁶. Finally there were some countries, like Sweden, where no price cap has ever been introduced and the tariff design does not follow a precise rule, leaving more freedom to the regulators⁶⁷.
- 8.131 In conclusion, by 2003 all EU countries had adopted a regulated TPA to their networks and most of them had a price cap mechanism in place. This led national and local grid operators to cut cost considerably, which, in turn, led to a reduction in infrastructure spending and to a drop in the demand for power cables.

⁶⁴ In Italy, with the creation in 1995 of the national regulator, the AEEG, the tariff system envisaged for both TSOs and DSOs was a price cap mechanism. The system has been revisited following the Second Electricity Directive, with a reformulation of the criteria to be followed in the design of the price cap. The first four-years regulatory period started in 1999, while the second one started in 2004.

⁶⁵ Denmark adopted a price cap mechanism for tariff setting in response to the Second Electric Directive. The national regulator, DERA, was founded in 2000, and the system of access to the distribution and transmission networks was initially based on bilateral negotiations between the network operators and their customers. From the year 2004, DERA introduced a price-cap regulation for both the TSOs and the DSOs.

⁶⁶ The situation of Germany is quite peculiar. The country was one of the few that based the access to the network on voluntary industry agreements (NPA), instead that on regulated third party access. Things have started to change in July 2005, when the new German energy industry act (EnWG) came into force. As a result, the new German network regulator, Bundesnetzagentur, could start its work and ex-ante regulation of tariffs has been introduced. Initially, all tariff changes must regularly be approved by the regulator: however, transition to an incentive-based regulatory model (price-cap mechanism) is planned for 2007.

⁶⁷ The Swedish regulatory situation differs from that of most other European countries in two respects: first, there is not an ex-ante regulatory system, but an ex-post one, in which tariffs are decided by the companies and then reviewed by the national regulator; second, the reference model for evaluating the tariffs is not based on the operating cost of the companies, but on their performance, according to the PAMEN (Performance Assessment Model for Electricity Networks) a quite innovative customer-based perspective, whose purpose is to evaluate whether tariffs can be regarded as reasonable. Probably this system puts less pressure on the companies to reduce costs, since their profits are more linked to the overall quality of their performance than to their capacity of reducing costs.

Trends in the demand for HV/EHV power cables

- 8.132 We have just discussed how the electricity tariff regulation introduced in most EU countries brought about a decrease in the level of investments in the transmission networks and, thus, a reduction in the demand for power cables. This downward trend in demand was partially offset by the need to connect alternative energy sources to networks and by the shift from overhead lines to underground ones. However, the scenario depicted in the Commission's decision appears valid.

The evolution of the supply side of the market

- 8.133 Over the period considered the market for HV/EHV power cables was dominated by large multinational companies that possessed production plants and distribution networks around the continent. Most of these companies tried to consolidate their position and increase their market shares through mergers and acquisitions. For example, NKT merged in 1999 with F&G Kabelwerke GmbH, and this brought to the establishment of NKT cables GmbH, based in Cologne. Also Nexans⁶⁸, the company set up in 2000 from the Alcatel cables division, has continued to develop in the European market through the acquisition of two Italian and a German company⁶⁹. This wave of mergers and acquisitions indicate that power cable suppliers tried to reorganise their production capacity. This consolidation process is also confirmed by the closure of factories around Europe during the period considered, which has been reported to us by a major European supplier..
- 8.134 In conclusion, the evolution of the regulation of public utilities operating in the transmission and distribution sectors, the trend in the demand for power cables, and the evolution of the supply side of the market confirm the validity of the key argument in the Commission's decision according to which the merger was part of the general restructuring process experienced by the power cables industry.
- 8.135 Together with the two factual assertions on the transitional state of the industry, the Commission's argument contained also a logical proposition, namely:

⁶⁸ We have mentioned in the introduction to this chapter the evolution from Alcatel cables to Nexans

⁶⁹ The Italian companies were Safi Conel and Cablosswiss, the German company was Petri.

- *Price cap mechanisms place strong incentives on customers to reduce costs through a reduction in investments and more aggressive bargaining.*

8.136 Economic theory confirms the validity of this proposition. Indeed, these mechanisms have been historically introduced because they are able to affect the efficiency of utilities. The incentive to reduce costs and bargain more aggressively in order to obtain lower prices derives from the fact that all cost savings not explicitly envisaged in the price cap increase the firms profits. Hence, in presence of profit maximising firms, these kind of mechanisms increase the cost-efficiency of firms.

The nature and strength of competitors

8.137 With respect to the nature and strength of the competitors, the Commission's argument contained two factual assertions:

- *There are at least four credible competitors in the HV/EHV market.*
- *These competitors ensure effective competition.*

8.138 The presence of at least four alternative credible suppliers was considered essential by the Commission to ensure effective competition in the market. Our analysis has confirmed that the competitors indicated by the Commission in the decision, namely NKT, ABB, Alcatel and Brugg, continued to be credible bidders in most European tenders during the years 1999-2003. Other companies also gained an important role in the market, among which the most important certainly are the American multinational General Cables and the Greek company Fulgor.

8.139 The analysis of the tenders' records that we have collected through our survey has indicated that the number of competitors for European tenders did not increase over the relevant period, since no significant entry took place. However, this is consistent with the Commission's view expressed in the decision, according to which entry in the market was particularly difficult, because of the time and the high investments required.

8.140 In order to evaluate the validity of this argument, it is necessary to understand whether the presence of four credible competitors is enough to guarantee effective competition. In this respect, we agree with the

Commission's evaluation, especially in the light of the nature and the strength of the mentioned companies. Most of these companies possess both the know how and the capacity to supply power cables around Europe, as most of them possess production and distribution facilities all around Europe.

The mode of competition

8.141 With respect to the mode of competition, the Commission's decision contains two factual assertions:

- *The market for HV/EHV cables is a bidding market:*
 - a. *each transaction has a large value;*
 - b. *transactions are infrequent;*
 - c. *contracts are awarded according to the winner takes all principle.*

- *Prices are not transparent.*

8.142 The peculiarity of the mode of competition and its implication for the competitive behaviour of the market players constituted the second key argument for the HV/EHV market. The nature of the bidding process played a crucial role in the Commission's analysis because it was considered sufficient to contrast the possible creation of a collective dominant position by Pirelli/BICC and Alcatel. Infrequent, large-sized, transactions, together with the winner-takes-all principle created the incentives for aggressive competition. Besides, the lack of price transparency impeded an effective monitoring between the firms, which in turn reduced the scope for collusive behaviours.

8.143 Our analysis confirms the validity of the argument used by the Commission. In the HV/EHV market, contracts were awarded on average twice in a year. This is a relatively low frequency. The average duration of the contracts was between one and two years. As far as the average value of each tender is concerned, we have estimated it to be close to 5 Mln Euros. In addition, contracts were always awarded according to the winner takes all principle. In Table 8.3 we provide a summary of the main characteristics of the HV/EHV cables market that emerged from our survey.

Table 8.3: The main characteristics of the HV/EHV cables market

Average length of a contract	Average value of a single transaction	Impact of accessories on overall supply	Average frequency of each contract
20 months	€ 4.870.000	65%	1,5 per year

Source: Lear on data collected through the questionnaire

- 8.144 As far as the issue of price transparency is concerned, our survey has confirmed that the price of power cables is difficult to derive from the value of the bids, since these include installation, accessories of different kind, specialist operations and building works.
- 8.145 Two logical propositions descend from these factual assertions, namely:
- *In a bidding market coordinated behaviours are unlikely to emerge.*
 - *The lack of price transparency makes coordinated behaviour unlikely.*
- 8.146 The economic theory confirms only partially the validity of the first logical proposition. Indeed, the creation of a collective dominant position might be difficult in a bidding market with the above mentioned characteristics, for two reasons:
- large-sized, infrequent contracts awarded according the winner-takes all principle make the gain from winning a single contract by deviating from the collusive path very high and attractive and it is likely to prevent the formation of coordinated effects;
 - coordination is not sustainable unless the punishment of deviation is sufficiently severe. It is the threat of future retaliation that keeps the coordination sustainable. If a market is characterised by infrequent, large-sized, transactions, it may be difficult to establish a sufficiently severe deterrent mechanism, since the losses from being punished may be uncertain and only materialise after some time;
- 8.147 However, the existence of a market in which the transactions are regulated by a bidding process is not a sufficient condition to ensure that coordinated effects will not emerge. Klemperer (forthcoming) has pointed that where entry is difficult and, especially when bidding is not winner-

takes-all, coordinated effects can emerge as easily in auctions and bidding processes as in “ordinary” economic markets. Hence, a competition authority cannot rely only on the existence of a bidding process to exclude the risk of tacit collusion, but it has to ensure that the market does not possess the characteristics that make the emergence of coordinated effects likely according to the now widely accepted repeated-game analysis.

- 8.148 As far as the second proposition is concerned, we express serious doubts about its general validity. It is true that coordination is extremely difficult if firms are not able to monitor each other; and it is also true that if the prices are difficult to identify, the scope for effective monitoring is reduced. However, in a bidding market, coordination may also take the form of an allocation of contracts between the colluding firms. In this respect, the price bids by the firms participating to the tacit agreement is irrelevant. Albano and Spagnolo (2005) have shown that the only information disclosure rule that is effective in preventing collusion is the one that prevents the communication of any information, including the identity of the winner. All the other rules allow bidders to envisage a sharing mechanism and, depending on the selected mechanism, a monitoring system that support a collusive equilibrium. Therefore, we believe that, especially in markets where the transactions are allocated through a bidding process, the analysis of the price transparency alone does not provide a significant information on the likelihood of coordinated effects.

8.2.4 Competitive assessment of the HV/EHV market: countervailing factors

- 8.149 The commission’s analysis contained three factual assertion with respect to the issue of buyer power, namely:
- *The demand side of the market is dominated by large national utilities that absorb almost the entire demand of HV/EHV cables*
 - *National utilities face no significant constraints in switching to different suppliers*
 - *National utilities can also exercise strategically their buyer power by facilitating the entry of new suppliers*
- 8.150 The presence of buyer power was, in the Commission’s decision, a key element able to countervail any potential abusive conduct by the merging firms. The buyer power in the HV/EHV market derived from the large size

of the national utilities operating in the transmission of electricity and from their commercial significance to the sellers. Indeed, in each member states, virtually all the demand for HV/EHV power cables came from the national TSO.

- 8.151 Our analysis confirms the Commission's argument. The nature of transactions did not change over the relevant period. The liberalisation process that had been taking place in the EU energy market did not determine relevant changes in the buyer power of transmission grid operators. Indeed, there had been changes in the ownership structure of these companies, as in the Italian case, where the grid property passed from ENEL to the GRTN, but this had not altered either the mode of competition or the commercial significance of the Italian transmission system operator as a buyer. The customers involved in our survey have confirmed that they would have not hesitated to switch to a new supplier if their current supplier had increased prices above the competitive level. In addition, they had the possibility to shape the supply side of the market; by placing a significant order, thus allowing a previously small sized firm to become a significant market player.
- 8.152 The liberalisation and regulation processes in the energy sector, instead, changed the incentives that utilities faced to use their buyer power. As we have pointed out above, the price-cap mechanisms generated the incentives for a more aggressive behaviour by customers.
- 8.153 The Commission's analysis contained also two logical propositions, that is:
- *Price cap mechanisms provide the incentive to exercise buyer power.*
 - *A strong buyer power is likely to disrupt any attempt to tacitly coordinate and to exert market power*
- 8.154 We have already discussed the validity of the first proposition, when discussing about the transitional state of the cable industry.
- 8.155 The second proposition is consistent with the prevailing economic theory: an aggressive use of buyer power can ensure effective competition in the market, and prevent the emergence of tacitly collusive behaviours.
- 8.156 The economic theory of tacit collusion has proven that firms must satisfy an incentive compatibility constraint to establish a stable collusive equilibrium. This constraint depends on the size of the collusive profits and

from the gain a firm can obtain by deviating from the coordinated behaviour. Collusion is more stable, and therefore more likely, the higher the collusive profits and the lower the deviation gain.

- 8.157 A buyer with some bargaining power can affect both variables and render collusion less likely. It can constraint the price increase that the colluding firms can obtain through their coordination, thereby reducing their collusive profits. In addition, a buyer whose demand is large relative to the size of the market may lure one of the colluding firms to deviate by offering it a very profitable and attractive contract.
- 8.158 A large company is normally a sophisticated buyer. Thus, it is aware of these strategic opportunities and takes advantage of them whenever it has an economic incentive. Price caps and any other type of “incentive” regulation make the recourse to these strategies more likely. Hence, the existence of strong bargaining power on the demand side of the market coupled with the proper incentive to take advantage of it, renders tacit collusion less likely.

The LV/MV market

- 8.159 The factual assertions and the logical propositions driving the first phase of the competitive assessment of the LV/MV market were related to three general arguments:
- the transitional state of the power cables industry
 - the existence of a wide competitive fringe
 - the mode of competition

The transitional state of the power cables industry

- 8.160 As already discussed in section on the HV/EHV market, three elements compose the analysis of this argument: an overview of the regulation of public utilities operating in the transmission and the distribution sectors; an exam of the demand trends over the years 1999-2003 and an exam of the consolidation process of the supply side of the power cable market.
- 8.161 The overview of the changes that were taking place in the regulation regime applies to both to HV/EHV market and the LV/MV one. Hence we shall not repeat it. Instead, the trends in demand for LV/MV cables and the evolution of the supply side of the market, however, are different from those that characterised the HV/EHV market.

Trends in the demand for LV/MV power cables

- 8.162 LV/MV cables were used both by utilities operating in the electricity distribution and by companies operating in different sectors. This implies that the demand for these cables reflects the different investment trends of all these sectors.
- 8.163 In order to check the validity of the Commission's argument, we are mainly interested in understanding the pattern of the demand for LV/MV cables over the years 1999-2003. Our survey has shown that demand from the utilities declined. According to the information collected in the survey, there was a decline of 4-5% per year all through the period. The main reason for this decline, suggested by both customers and producers, was the liberalisation process and the introduction of efficiency-enhancing regulation that were taking place in the energy sector.
- 8.164 This finding confirms the validity of the Commission's argument. Power cables producers were confronted with a reduction in the investment levels made by regional utilities, and with a consequent drop in demand. This tendency was only partially offset by the growing demand of LV cables by the building industry.

The evolution of the supply side of the market

- 8.165 The consolidation process of the supply side of the market described for the HV/EHV power cables market affected also the LV/MV market. This is true not only because the HV/EHV suppliers are also involved in the production of LV/MV cables, but also because some important mergers took place between firms specialised in the production of LV/MV cables. An example is the merger between Draka and NFT that took place in 1999.

Summing up

- 8.166 In conclusion, our analysis of the regulation of public utilities operating in the transmission and distribution fields, of the trends in the demand for LV/MV power cables, and of the evolution of the supply side of the market, has confirmed the validity of the key argument in the Commission's decision, according to which the merger has to be seen in the context of the general restructuring of the power cables industry.

The mode of competition

8.167 With respect to the mode of competition, the Commission's analysis contained two factual assertions, namely:

- *The LV/MV market is a procurement market.*
- *Utilities use framework agreements and multiyear purchase arrangements to increase the value of a single transaction.*

8.168 In the LV/MV market, the Commission's decision stressed how customers had the possibility to use framework agreements or multiyear contracts, in order to raise the value of transactions and reduce their frequency. This was deemed sufficient to compensate for the effects of a mode of competition generally different from the one in the HV/EHV market. Indeed, the LV/MV market is described in the decision as a procurement market, in which transactions take place frequently and the average value of each transaction is relatively low.

8.169 Our survey revealed that the organisation of the transactions in the LV/MV market was, during the period considered, quite heterogeneous. We can roughly distinguish three groups of buyers, each operating according to a different system.

- A first group operated as in the HV/EHV market: contracts were awarded through infrequent tenders; their average value was relatively high, even higher than in the HV/EHV market, and they lasted for a period from one up to five years. Framework agreements or other pre-qualification systems were often used to select the suppliers allowed to participate in the tenders.
- A second group bought power cables both through tenders and spot transactions. Contracts awarded through tenders had characteristics similar to the ones described above, although their average value was lower, while spot purchases were very frequent and their value was very low.
- The last group bought cables only through frequent tenders, where contracts lasted between two and three years, and their value was relatively low. Also for this group we observed the use of pre-qualification systems.

8.170 This description confirms the validity of the Commission's argument. However, we also found out that companies had several ways to shape their transactions so as to raise their average value, for example through framework agreements or multi-year purchase arrangements.

8.171 The Commission's analysis derived two logical propositions from the observed characteristics of the market:

- *The lack of price transparency makes coordinated behaviours unlikely.*
- *Mechanisms that aggregate demand contrast the emergence of coordinated behaviours.*

8.172 As far as the first proposition is concerned, we have already explained that we do not believe that the lack of price transparency is sufficient to exclude the possibility of tacitly collusive behaviours, especially in markets where contracts are allocated through a bidding mechanism.

8.173 With respect to the second proposition, the economic theory supports the Commission's argument. The aggregation of contracts has two relevant effects: first, it increases the size of the gain a firm can secure by deviating from the coordinate behaviour; secondly, it decreases the frequency of the transactions making the retaliatory mechanism less effective (see Albano et al., 2006). However, we believe that this proposition is not sufficient to exclude the risk of coordinated effects, as a competition authority must always check that the market lacks other conditions that make collusion unlikely.

The existence of a wide competitive fringe

8.174 The Commission analysis of the competitive environment of the LV/MV market contains one factual assertion:

- *In the LV/MV market, there exists a wide fringe of competitors.*

8.175 Our analysis confirms the Commission's argument. Besides the large manufacturers operating in both markets, many second tier producers operated in the LV/MV market during the relevant period. The distinguishing feature of this second group of firms is that they were more

limited in their range of supply. Most of these companies either supplied cables to regional utilities located in their own country or specialised in niche applications.

8.176 The fact that there were many second tier suppliers operating in the LV/MV market does not guarantee per se that these suppliers were competing on the same level as the large first tier manufacturers. It could be, for example, that regional utilities purchased from second tier manufacturers only in the case of small value transactions, while buying from first tier manufacturers when the value was high. If that was the case, the presence of many second tier manufacturers would not have guaranteed effective competition. Our analysis of the transaction records of LV/MV buyers has revealed that the second tier manufacturers competed for the award of the same contracts as the main first tier producers. This strengthens the validity of the Commission's argument.

8.177 The analysis of the Commission contained, in addition to the assertion of the existence of a wide fringe of competitors, a logical proposition:

- *Fringe competitors can make a collusive equilibrium unstable.*

8.178 This proposition is supported by the prevailing economic theory which claims that a competitive fringe dampens the ability of the firms that participate in the collusive scheme to set the price. These firms' readiness to supply the market makes the residual demand for the colluding firms more elastic, so that the collusive equilibrium is obtained at a lower price and guarantees lower profits. Since the stability of collusion is negatively affected by a decrease in the level of the collusive profits, the existence of a competitive fringe reduces the risk of coordinated effects.

8.3 Missing key factors

8.179 In this section we verify if the key arguments on which the Commission based its decision include all the key factors that may affect the competitive effects of a proposed merger. The key factors are all those characteristics of the market that determine the impact of a merger on competition and, hence, on the consumers' welfare. It is possible that in developing the key arguments the Commission missed one or more of these key factors.

8.180 As we have highlighted in Chapter 5, even if a decision is correct, in that it properly protects consumer welfare, the Commission could have

overlooked some important market characteristics. The ex-post evaluation of the Commission's decision should identify all the key factors omitted in the decision and provide a judgement on how relevant the omission is.

- 8.181 In our opinion, two factors have been omitted in the Commission's analysis:
- the first factor relates to the relation between price transparency and the potential emergence of tacitly collusive behaviours; and
 - the second factor relates to the possible efficiencies generated by the merger.
- 8.182 The first factor has already emerged in section 8.2 and has been therein discussed. As we have observed in Chapter 5, most of the missing key factors related to the sufficiency of the key arguments emerge as a by-product of the assessment of their validity, especially when these are logical propositions.
- 8.183 In the part of the decision devoted to the competitive concerns in the absence of countervailing factors, the Commission noticed that the lack of price transparency is an element able to obstacle the emergence of coordinated behaviours between Pirelli/BICC and Alcatel. This reasoning omits the fact that, although it is true in general that when the prices are difficult to observe, the scope for effective monitoring is reduced, in a bidding market coordination may also take the form of an allocation of contracts between the colluding firms. We think that the Commission omitted to consider this factor in its analysis.
- 8.184 The economic literature shows that the only information disclosure rule that is effective in preventing collusion in procurement auctions is the rule that prevents the communication of any information, including the identity of the winner. All other rules allow bidders to envisage a sharing mechanism and, depending on the selected mechanism, a monitoring system that supports a collusive equilibrium. Therefore, we believe that, especially in markets where the transactions are allocated through a bidding process, the analysis of the price transparency alone is not sufficient to determine the likelihood of coordinated effects.
- 8.185 The second factor omitted in the Commission's analysis is the consideration of the potential efficiencies generated by the merger. The

Commission refers to the fact that the merger has to be considered as an “efficient” response to the restructuring process on the demand side, however, it does not considers explicitly the efficiencies that the merger might generate or their magnitude.

- 8.186 As we can read in the Commission’s Guidelines, mergers may bring about various types of efficiency gains that can lead to lower prices or generate other benefits to consumers. Cost savings in production or distribution may give the merged entity the ability and incentive to charge lower prices. Consumers may also benefit from new or improved products or services resulting from efficiency gains in the sphere of R & D and innovation.
- 8.187 The analysis of the efficiency gains would have been relevant also when considering the possible coordinated effects of the merger. Efficiencies may increase the merged entity’s incentive to increase production and reduce prices, and, thereby, weaken its incentive to coordinate with its competitors.
- 8.188 As we have underlined above, the analysis of the key factors omitted in the Commission’s decision must take due account of the consequences of these omission and consider how relevant they were.
- 8.189 With respect to the first omitted factor, we believe that the relevance of this omission is mitigated by the existence of other factors. In the HV/EHV market, the presence of several strong alternative competitors, together with the significant buyer power exercised by national utilities, are two factors that guarantee that the conditions for a cooperative behaviours are unlikely to materialise.
- 8.190 With respect to the efficiency gains, the consideration of the potential efficiencies generated by the merger would have not altered the sign of the decision. It would have only strengthened the Commission’s arguments. This implies that the omission does not invalidate the decision. In addition, the consideration of the efficiencies generated by the merger as a potential countervailing factor has been explicitly introduced in the new MCR and in the Commission’s practice only after the *Pirelli/BICC* decision⁷⁰, while at the time of the decision there was no agreement yet on

⁷⁰ The *Pirelli/BICC* decision was adopted under Regulation num. 4064/89. This Regulation has been replaced by Regulation 139/04 in 2004. In the same year, the Commission issued the EC Guidelines (on horizontal mergers).

whether efficiencies had to be included in the competitive assessment of a merger.

- 8.191 In the light of these considerations, we conclude that the omission of two factors in the Commission's decision, did not have significant effects on the overall competitive assessment of the merger and their inclusion would not have changed the decision made by the Commission.

9 General conclusions

9.1 In this study we have undertaken two tasks, as asked by the DG Competition. The first has been to develop a general methodology for the ex-post review of merger control decisions. The second one has been to apply the proposed methodology to a specific merger decision (the Pirelli/BICC merger) selected by the DG Competition. Our work builds on the relevant economic literature, which is summarised in Appendix I. In this chapter we describe the main conclusions with respect to both tasks.

9.1 The methodology

9.2 In the first part of the study we have proposed a methodology for the ex-post review of merger control decisions that aims:

- 1) to establish whether the market structure arising from the decision is apt to pursue the economic goal of the EU MCR better than the market structures that could have arisen from alternative decisions within the set of decisions that the Commission can legally take; and
- 2) to assess whether the analysis adopted to reach the decision is correct.

9.3 We have called the first element in the methodology the “assessment with respect to the ultimate economic goal” and the second element the “assessment of the analysis”.

9.4 A preliminary issue that we had to resolve in order to apply our methodology was to identify the economic goal that the MCR is meant to pursue. We have argued that, despite some inconsistency in some EU policy documents and the never settled economic debate on the proper goal of competition law, the European legislation indicates that the MCR should be applied so as to prevent mergers that harm consumers. Therefore, we have concluded that the economic goal that must be used in the assessment of the merger control decision is the protection of consumer welfare.

9.5 Once the economic goal has been clearly defined, the reviewer has to establish whether the decision made by the Commission was the best to pursue it, within the set of decisions that the existing legislation makes

legally possible. Hence, the reviewer has to verify whether the same goal could have been better pursued by an alternative decision within this legal framework.

- 9.6 This judgment requires to assess the effects of the actual decision on consumers welfare, identify all the available alternative decisions, assess the level of welfare consumers would have obtained in these counterfactuals and compare it with the level of the actual decision.
- 9.7 We have described how to identify all the relevant counterfactuals in each possible situation and for each type of decision. Table 4.1 in Chapter 4 summarises these results.
- 9.8 We have then discussed the notion of consumer welfare and identified the main determinants of its level. These are: the prices at which the goods and services are exchanged, the volumes of these transactions, and the quality and variety of the goods and services and the consumers preferences. A merger decision may affect all of these variables and, therefore, all of them must be examined in the ex-post review.
- 9.9 Assessing the evolution of the consumer welfare *after* the decision is a natural starting point for the ex-post review. This exercise is particularly useful when dealing with a decision to approve a merger. We have argued that the market evolution after the merger may provide enough information to understand whether the increase or decrease in consumer welfare was the consequence of a more competitive or of a less competitive market. Hence, if we can exclude that the level of competition in the market has changed because of exogenous factors (i.e. factors non dependent on the merger) we can conclude that if after the merger the market has become more competitive, the decision was appropriate, whereas if the market has become less competitive the decision was inappropriate.
- 9.10 If we cannot exclude that the change in the level of competition was due to some exogenous factors, then the above analysis does not suffice, and we must adopt some empirical techniques to assess the level of competition and of consumer welfare that would have occurred in the absence of the merger. We believe that a survey of market players and an event study are the best techniques to accomplish this task.
- 9.11 The actual evolution of the market is much less informative when the reviewer deals with a prohibition decision. Assessing a prohibition is much

more complex than assessing an authorization, because the evolution of the market after the decision does not help in forming a *prima facie* hypothesis that can be tested. The approach that we have proposed to assess the appropriateness of a clearance is mostly based on a series of tests aimed at understanding whether there is a causal relationship between two events: the actual evolution of the market and the actual merger. This method cannot be applied when the Commission prohibits a merger, because the second event has not happened and, therefore, there is no actual causal link that can be tested. Hence, in this case it is only possible to define a potential causal relationship between the (potential) merger and its (potential) effects on the market and test it.

- 9.12 This problem is completely different from the one considered previously, but it is actually identical to the problem a competition authority faces when it tries to predict the effects of a *future* merger. Hence, all the techniques that can be, and are routinely, used by competition authorities in the ex-ante assessment of mergers can also be used for their ex-post review. These techniques include: structural models and policy evaluation methods. However, we believe that these techniques are troublesome and rarely applicable, especially because in the ex-post analysis the Commission lacks any power to request market data to the firms and can only rely on their willingness to cooperate.
- 9.13 We believe that the best way to handle the ex-post review of a prohibition decision is to rely on the expectation that some qualified market players formed on how the market would have evolved had the proposed merger happened. These expectations can be solicited through a questionnaire to be addressed to selected and informed market players or can be inferred from their actual market behaviour, whenever their rational conduct is based on expectations about the evolution of the market. These expectation-based conducts occur in the stock market or in any of those markets where future contracts are traded.
- 9.14 Box 4.1. in Chapter 4 provides a summary of the methods for evaluation that are applicable in each possible case. All the techniques that therein are mentioned are discussed in more details in the Appendix II.
- 9.15 The second element in the proposed methodology is the assessment of the analysis, where by analysis we mean the nexus of factual assertions and logical propositions through which the Commission attempts to identify the relevant casual relationships between the proposed merger

and the expected development of the market. It is important to know why and how the Commission met the economic goal of the merger regulation, if it did, and in case an inappropriate decision was taken, where exactly the error that led to it was made. This type of ex-post review will enhance the Commission's ex-ante decision-making process, and reduce the probability and the size of the errors. In addition, even if the Commission took the appropriate decision, it could have done so for the wrong reasons and from this too can be derived other useful lessons.

- 9.16 In order to perform the review of the analysis we have proposed a three-stage methodology that consists of:
- 1) the identification of the key arguments on which the decision was based;
 - 2) the evaluation of the validity of these key arguments; and
 - 3) the evaluation of the completeness of these key arguments.
- 9.17 We have proposed to break up the decision in two phases and apply the three-stage methodology to each phase. The first phase concerns the definition of the relevant market; the second phase concerns the competitive assessment and includes the analysis of the relevant competitive concerns and that of any possible countervailing factors. For each of the key arguments contained in the decision, we have suggested to identify separately all the factual assertions and all the logical propositions (stage 1); then, to verify if all the factual assertions are true or false and if the logical propositions are internally consistent and are supported by the prevalent economic theory (stage 2). Finally, we have proposed to assess if the key arguments are sufficient for the conclusions reached in the decision and if there exist any key factor that was omitted from the analysis (stage 3). Boxes 5.1 to 5.5 in Chapter 5 provide a description of how to perform each of the three stages of the ex-post assessment of the analysis.
- 9.18 In order to support those who will perform an ex-post assessment of the analysis behind a merger decision following the herein methodology proposed, we have developed a template for a questionnaire that could be used to identify the key arguments (Appendix III); and a template for a questionnaire that could be used to verify if any key factor has been missed (Appendix IV).

9.2 The case study

- 9.19 The methodology proposed in Part I has been applied to the decision adopted by the Commission for the merger between Pirelli and BICC.
- 9.20 Our analysis focused, as requested by the DG Competition, only on two of the four relevant markets identified by the Commission in the decision, namely the market for low and medium voltage power cables (LV/MV); and the market for high and extra-high -voltage power cables (HV/EHV).
- 9.21 The Commission investigated three possible competitive effects, that the merger could have determined, namely:
- that the merger could have led Pirelli/BICC and Alcatel to gain a collective dominant position in the LV/MV market ,
 - that the merger could have led Pirelli/BICC to gain a single dominant position in the HV/EHV market, and
 - that the merger could have led Pirelli/BICC and Alcatel to gain a collective dominant position in the HV/EHV market.
- 9.22 We have first assessed the decision with respect to the economic goal of protecting consumer welfare through two empirical tools: an event study, and a survey of the main market players on both the demand and supply sides of the market.
- 9.23 The event study showed that on average, the competitors of Pirelli and BICC did not significantly gain from the merger while consumers did. This finding suggests that the financial market expected the merger to be pro-competitive and, hence, that the Commission's decision to authorize the merger was appropriate
- 9.24 Our survey of the major market players confirm the result obtained through the event study. According to the information provided by the respondents, both the HV/EHV power cables market and the LV/MV power cables market experienced a price decrease, together with a moderate decrease in demand and a reduction in production costs. Moreover, all the respondents to our questionnaire affirmed that the merger was not the specific cause of any price increase or of any deterioration of other purchasing conditions. Overall, the information collected indicates that the merger had no negative effects on the level of consumers' welfare. None

of the market players surveyed has suggested that a different decision by the Commission would have been more effective in pursuing the goal of protecting consumers' welfare.

- 9.25 Finally, we have carried out a review of the analysis on which the decision was based. We have identified all the key argument made by the Commission in supporting its definition of the relevant markets, its evaluation of the competitive concerns raised by the merger and of any countervailing factor. Moreover, for any key argument we have identified the factual assertions and the logical propositions on which they were based. Our findings are summarised in the Boxes 8.1 to 8.6 in Chapter 8.
- 9.26 We have conducted a survey of the major market players and several telephone interviews to verify whether all the factual assertions contained in the key arguments of the decision were true at the time the decision was made and were still true in the years following the merger. The results of our survey confirm the truthfulness of all the factual assertions in the decision.
- 9.27 We have then checked the validity of all the logical propositions made by the Commission, driving the key arguments of the analysis, in order to check whether they are supported by the prevalent economic theory. We found that most of the propositions made by the Commission are indeed consistent with the economic literature. We only identified two propositions that are not sufficiently grounded on a solid economic reasoning.
- 9.28 The first of these two propositions concern affirms that “in a bidding market coordinated behaviours are unlikely to emerge”. We believe that the economic theory confirms only partially the validity of this logical proposition. The existence of a market in which the transactions are regulated by a bidding process is not a sufficient condition to ensure that coordinated effects will not emerge. Recent economic contributions have argued that where entry is difficult, and especially when bidding is not winner-takes-all, coordinated effects can emerge as easily in auctions and bidding processes as in “ordinary” economic markets. Hence, a competition authority cannot rely only on the existence of a bidding process to exclude the risk of tacit collusion.
- 9.29 The second proposition is that “the lack of price transparency makes coordinated behaviours unlikely”. We have expressed serious doubts about the validity of this proposition when applied to markets in which

contracts are allocated through a bidding process, where coordination may take the form of an allocation of contracts between the colluding firms. In this respect, the price bid by the firms participating in the tacit agreement is irrelevant. Therefore, we believe that especially in markets where the transactions are allocated through a bidding process, the analysis of the price transparency alone does not provide sufficient information to decide on the likelihood of coordinated effects.

- 9.30 The same checks have been carried out for all the factual assertions and the logical propositions concerning the assessment of any countervailing factors. Our review reveals that all of them are true and valid.
- 9.31 Hence, we have concluded that the analysis on which the decision stands is correct. We have pointed out that the Commission did not adequately address two issues: the first is about the possibility that firms try to coordinate their behaviour through forms of market sharing that do not require price transparency, and the second is about the efficiency generated by the merger. However, we believe that the considerations of these two factors would not have changed the outcome of the analysis.
- 9.32 With respect to the first omitted factor, we believe that in the HV/EHV power cables market, the presence of several strong competitors and the significant buyer power exercised by national utilities, are two factors that guarantee that the conditions for a cooperative behaviours are unlikely not materialise.
- 9.33 With respect to the efficiency issue, we noticed that the consideration of the potential efficiencies generated by the merger would have not altered the decision. Moreover, at the time when the Commission took the decision, there was no agreement on whether efficiencies had to be included in the competitive assessment of a merger.
- 9.34 In the light of these considerations, we have concluded that the omission of two factors in the Commission's decision, did not have significant effects on the overall competitive assessment of the merger.

9.3 Some lessons learnt from the case study

- 9.35 This case study has been useful because it has allowed us to test the methodology proposed in Part I and to identify some of the practical problems that a reviewer may encounter when assessing ex-post a merger decision.

- 9.36 The greatest difficulties that a reviewer is likely to encounter regarded the collection of data on the market variables both at aggregate and at the firm level. A survey can be a very useful support, but it can require considerable time to run it. In our case we had to allow the respondents 6 weeks to reply in order to maximise the response rate. Moreover, reminder calls and emails, and follow up calls were necessary. Despite all these efforts, the number of respondents, especially among the suppliers, was still not as high as we hoped for.
- 9.37 Sending the questionnaire through the Commission, as we did, can help in ensuring more cooperation from the firms contacted, but still it has to be borne in mind that none of them has an obligation to respond and most of them may consider that they would not obtain any advantage from participating. In addition, there can be concerns about the commercial sensitivity of the some data requested and this have to be carefully address from the start to avoid putting off the respondents (see also section 2.7.2 in Chapter 2).
- 9.38 We believe that to improve the effectiveness of any survey it would be useful if the Commission raised the firms' awareness about its intention to perform these ex-post evaluations, stressing their utility for the business community in terms of an improved merger decision process, and appeasing concerns about the treatment and release of the data.
- 9.39 We found that running one or more pilot is essential to ensure the quality and the completeness of the data collected through a survey. The pilot permits to verify that the right questions are asked and that these are properly understood by the respondents. It is essential to avoid the use of antitrust terminology which the respondents may not be familiar with, while it is important to make use of the terminology relative to the market(s) under exam to avoid confusion and guarantee consistency across the responses. Follow-up interviews proved also very helpful to address some of doubts or misunderstandings that arose in the written questionnaires and to obtain more in-depth information on specific issues.
- 9.40 Anyway surveys, however well run, have their limitations and are unlikely to generate all the data that are necessary to employ techniques that rely on econometric analysis. For example to apply an evaluation method it is best to have data on a set of merger that took place in the same industry and for event studies it is necessary to have time series of stock market

prices. In some cases this data may not be available at all, but often these can be purchased from market research companies, through sectoral publications or from financial databases (e.g. Datastream), but their cost is considerable and has to be taken into account when setting the budget for the ex-post assessment exercises.