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Ex-post Assessment of Merger Effects: The Case of Pfizer and Pharmacia (2003)

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Non-technical summary

The pharmaceutical industry has recently experienced numerous mergers and acquisitions. The number of studies which investigate the effects of pharmaceutical mergers is, however, rather limited. This paper studies the effects of the Pfizer and Pharmacia (2003) merger on competition in the Swiss pharmaceutical market and compares the merger predictions of the Swiss Competition Commission (COMCO) with the post-merger market developments.

We find that the merger has had a miniscule impact on the Swiss pharmaceutical market. This has primarily to do with the fact that the product portfolios of both companies have shown no or only slight overlaps. In both cases of potential anticompetitive effects, the companies proposed to divest some of their assets in order to prevent a further strengthening of their dominant position. This included products in the development phase which were not available on the market at the time of the decision. In other markets in which either an overlapping of businesses of both companies existed or in which one of the merging entities held a dominant market position, no significant effects of the merger were noticed. This might have to do with both, existing price regulation in the Swiss drug industry and changes in Pfizer's product portfolio following the merger. Furthermore, with respect to other potentially interesting market characteristics such as investment behaviour, R&D, sales or employment, available data on global company level does not allow an isolation of the possible effects of the merger.

On the level of the specific merger case, we can deduce that the COMCO assessment of actual and potential competition in the Swiss pharmaceutical market has been largely correct. The market structure seems to be rather stable overall, however, varies within the different product categories. The competitive situation has been correctly assessed by the COMCO – for example, with respect to the presence of market entry barriers or the role of potential competition. Generally, the dynamic structure of the market often complicates the interpretation of, e.g., market share developments after the merger.

On a more general level, the paper contributes to the growing literature on the evaluation of merger enforcement. Although the focus here is on an ex-post evaluation of a single merger decision, the fundamental problems of ex-post studies are nicely illustrated. In order to fully evaluate the work of the competition authority in a particular case, detailed data (and complementary information) is necessary to allow the use of sophisticated econometric techniques. However, such information is typically difficult to acquire, largely due to data confidentiality issues. In any case, it should be stated clearly that this paper focused on an assessment of a single merger and therefore does not allow any conclusion on a more general level. An evaluation of the overall merger enforcement policy in Switzerland or in another country is forced to use a much larger sample of mergers in order to allow the derivation of broader conclusions about the state of merger control and possible reform needs.

Das Wichtigste in Kürze

In den letzten Jahren hat die Pharmaindustrie zahlreiche Fusions- und Akquisitionsaktivitäten erlebt. Dennoch existieren nur eine Hand voll Studien, die die Effekte solcher Pharmafusionen analysieren. In diesem Beitrag untersuchen wir die Effekte der Fusion von Pfizer and Pharmacia (2003) auf den Wettbewerb im Schweizer Pharmamarkt und stellen die Fusionseinschätzungen der Schweizer Wettbewerbskommission (WEKO) den tatsächlichen Marktentwicklungen nach der Fusion gegenüber.

Wir stellen fest, dass der Zusammenschluss von Pfizer und Pharmacia kaum den Wettbewerb auf dem Schweizer Pharmamarkt verändert hat. Die Gründe liegen in erster Linie darin, dass die aktuellen Produktportfolien der beiden Unternehmen nur wenige Überschneidungen aufwiesen. In den beiden kritischen Fällen wurden Auflagen ausgesprochen, die verhindern, dass eine marktbeherrschende Stellung verstärkt wird. Dabei wurden auch Produkte berücksichtigt, deren Markteinführung absehbar war. In den anderen Märkten, in denen es eine Überscheidung in den Geschäften der beiden Unternehmen gab oder eines der beiden Unternehmen eine marktbeherrschende Stellung inne hatte, waren Effekte der Fusion aufgrund der Preisregulierung in der Schweizer Pharmaindustrie und den Änderungen im Pfizer's Produktportfolio kaum feststellbar. Einige denkbare Effekte der Fusion wie beispielsweise auf das Investitionsverhalten, F&E, Erlös, Beschäftigung konnten nur auf Konzernebene untersucht werden. Ein Rückschluss auf den Zusammenschluss ist daher nicht eindeutig.

Auf der Ebene des untersuchten spezifischen Fusionsfalls stellen wir insgesamt fest, dass die Beurteilung der WEKO zum aktuellen und potentiellen Wettbewerb auf dem Schweizer Pharmamarkt zutreffend war. Die Marktstruktur ist insgesamt eher stabil, differenziert aber zwischen den verschiedenen Produktkategorien. Die WEKO hat die Wettbewerbssituation korrekt eingeschätzt, beispielsweise bezüglich der Präsenz von Markteintrittbarrieren oder der Rolle des potentiellen Wettbewerbs. Insgesamt erschweren aber die dynamischen Entwicklungen des Marktes eine detaillierte Interpretation, beispielsweise der Marktanteilsentwicklungen nach der Fusion.

Auf einer generelleren Ebene liefert der Aufsatz einen Beitrag zur wachsenden Literatur der Evaluation von Fusionsentscheidungen. Obwohl wir uns auf die Analyse einer einzelnen Fusion konzentrieren, veranschaulicht der Beitrag die fundamentalen Probleme und Herausforderungen von ex-post Studien. Um die Tätigkeiten der Wettbewerbsbehörden in einem bestimmten Fusionsfall vollständig zu beurteilen, sind detaillierte Daten (und zusätzliche Informationen) für die Durchführung ökonometrischer Analysen erforderlich. Im Regelfall sind solche Informationen jedoch oft kaum verfügbar, vor allem aufgrund von Vertraulichkeitsaspekten. In jedem Fall sollte abschliessend klar darauf hingewiesen werden, dass die Beurteilung einer einzelnen Fusion im Fokus dieses Beitrags steht und somit keine generelleren Schlussfolgerungen abgeleitet werden können. Um die gesamte Fusionspolitik und etwaiges Reformpotential in der Schweiz oder in einem anderen Land beurteilen zu können, ist die Untersuchung einer deutlich grösseren Anzahl an Fusionen erforderlich.

Ex-post Assessment of Merger Effects: The Case of Pfizer and Pharmacia (2003)

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Abstract

The paper studies the effects of the Pfizer and Pharmacia (2003) merger on competition in the Swiss pharmaceutical market and compares the assessment of the Swiss Competition Commission (COMCO) with the post-merger market developments. We find that the merger has had a miniscule impact on the Swiss pharmaceutical market. This has primarily to do with the fact that the product portfolios of both companies have shown no or only slight overlaps. In both cases of potential anticompetitive effects, the companies successfully proposed to divest some of their assets in order to prevent a further strengthening of their dominant position. The remedies included products in the development phase which were not available on the market at the time of the decision. In other markets in which either an overlapping of businesses of both companies existed or in which one of the merging entities held a dominant market position, no significant effects of the merger were noticed. This might have to do with both, existing price regulation in the Swiss drug industry and changes in Pfizer's product portfolio following the merger. Furthermore, with respect to other potentially interesting market characteristics such as investment behaviour, R&D, sales or employment, available data on global company level does not allow an isolation of the possible effects of the merger.

Keywords: Mergers, ex-post evaluation, pharmaceutical markets

JEL Classification: K21, L42, L62

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1 Introduction

An assessment of the competitive effects of a merger is an integral part of an overall ex-post evaluation of competition policy. Reflecting upon this key role, the number of internal and external studies – conducted by competition authorities and outside experts, respectively – that focus on an evaluation of merger enforcement has increased significantly during the last couple of years.[1] Generally, an ex-post assessment of merger decisions aims to evaluate whether the predictions of the competition authorities at the time of the merger decisions coincide with the actual effects of the mergers. In particular, it allows one to investigate the question whether the economic arguments applied by the antitrust authorities to evaluate the competitive effects of mergers have performed well in predicting the price and market share effects of the mergers. Furthermore, an ex-post assessment may shed light on the question whether the merger decision was the best possible in the sense that no alternative decision of the competition authority would have led to a better performance in terms of total or consumer welfare, respectively.

The pharmaceutical industry has recently experienced numerous mergers and acquisitions. Control of pharmaceutical mergers involves, on the one hand, the standard analysis focusing on actual and potential price competition as well as market share effects of the merger. On the other hand, however, price competition in pharmaceutical markets may be rather restricted as drugs prices in most countries are subject to regulation. Competition may possibly take place along other dimensions such as innovation or advertising which are often much more difficult to assess in practice. Furthermore, market shares may also bear little information in such dynamic industries, especially because market power as measured by market share today does not immediately imply market power tomorrow. To address these issues, the European Commission and the Federal Trade Commission (FTC) apply the "future products markets" or "innovation markets" concepts, respectively, within their merger control proceedings in innovation intensive industries.

The number of studies which investigate the effects of horizontal mergers in the pharmaceutical industry is rather limited. In particular, the empirical literature on the motives of such mergers is not extensive and does not provide a clear answer to the question which motive is dominant: further integration to raise the company's efficiency or alternatively further integration to increase market power. Hassan et al. (2007), for example, found abnormal returns and efficiency gains for acquisitions both in the short run and in the long run, but no abnormal returns for acquiring companies in the case of mergers. Furthermore, Higgins and Rodriguez (2005) found positive returns for acquirers in the case of acquisitions. Generally, the potentials for efficiency gains and motivations for mergers in the pharmaceutical industry are discussed in detail in CRA (2004). Often there is little concern regarding the presence of coordinated effects in innovation intensive industries such as pharmaceuticals (OECD, 2003a); consequently, competition authorities rather focus on the examination of the unilateral effects of mergers.

The effects of pharmaceutical mergers on R&D incentives are also ambiguous: On the one hand, a merger might decrease the pressure on a company to be innovative and to develop rapidly successful new products. On the other hand, a merger often brings together complementary assets such as the competencies of various scientists which can cause increases in R&D productivity. With respect to the first effect, Danzon et al. (2004) find that post-merger integration may divert cash from the R&D activities of small merging firms and that mergers have little effect on the R&D investments for large companies (once the

[1] See especially Pautler (2003) and LEAR (2006) for academic literature overviews and, for example, Competition Commission (2003), PricewaterhouseCoopers (2005), CRA International (2007), Competition Commission (2008a) and Deloitte (2009) for studies with a focus on practice. A general overview of ex-post evaluations of merger enforcement and merger remedies performed by competition authorities can be found in OECD (2005).

propensity to merge has been controlled for). Ornaghi (2009) argues that mergers can harm innovation competition and that merged companies have on average worse innovation performances than non-merging firms. If the second effect prevails, the companies could be poised to spend more on R&D activities due to increased productivity. Cockburn and Henderson (1996) find in particular that ”up to a point” the productivity of research programs conducted within large firms will be significantly higher than those orchestrated by small firms. Economies of scale and scope as well as enhanced absorption of internal and external spillovers are the main advantages of running larger research efforts. Grabowski and Kyle (2008) argue on the contrary that very small firms with only a few projects in their R&D portfolio will benefit most from mergers with more experienced companies in the development of new drugs.

Against this background, the paper aims to contribute to the growing literature on the evaluation of merger enforcement, looking at the ex-post economic effects of a merger in the Swiss pharmaceutical market, namely the merger of Pfizer and Pharmacia (2003). We find that the merger has had a miniscule impact on the Swiss pharmaceutical market. This has primarily to do with the fact that the product portfolios of both companies have shown no or only slight overlaps. In both cases of potential anticompetitive effects, the companies proposed to divest some of their assets in order to prevent a further strengthening of their dominant position. This included products in the development phase which were not available on the market at the time of the decision. In other markets in which either an overlapping of businesses of both companies existed or in which one of the merging entities held a dominant market position, no significant effects of the merger were noticed. This might have to do with both, existing price regulation in the Swiss drug industry and changes in Pfizer’s product portfolio following the merger. Furthermore, with respect to other potentially interesting market characteristics such as investment behaviour, R&D, sales or employment, available data on global company level does not allow an isolation of the possible effects of the merger.

The paper is structured as follows. In the forthcoming second section, the merger of Pfizer and Pharmacia is shortly described, followed by a brief characterization of the methodological framework for the evaluation of pharmaceutical mergers and remedies. Subsequently, the evaluation results are depicted in two separate sections. While the overall results are presented in section 4, the assessment of the merger remedies is provided subsequently in section 5. The sixth section concludes the paper.

2 The Pfizer and Pharmacia (2003) merger at a glance

The Swiss Competition Commission (COMCO) received the notification of the proposed merger of Pfizer and Pharmacia on November 11, 2002. The merger was notified at the European Commission on October 25, 2002 and at the US FTC, the “Agreement and Plan of Merger” of Pfizer and Pharmacia was received on July 13, 2002.

At the time of the merger notification, Pfizer was the largest pharmaceutical company in the US. Moreover, Pfizer was the largest manufacturer of animal health care products and one of the largest manufacturers of consumer health products worldwide (FTC, 2003a). The firm operated its own production plants in Switzerland. Pharmacia was engaged in research, development, production and sales of human pharmaceutical products, animal healthcare products, fine chemicals and consumer health products. The firm had no own production plants in Switzerland.

The parties justified the merger due to increased demand for cheap but highly effective drugs in combination with cost increases in health care as well as the demographic developments. Moreover, it was argued that the pressure to consolidate increased due to the expiry of patent

protection for different drugs (see Table 1) and the likely market entry of generics. Furthermore, the companies strived for important synergies in the field of R&D.

Table 1: Effects of patent expiry on the world largest pharmaceutical companies

Company	*2010*		*2011*		*2012*		*Share of revenue, (%)*
Astra Zeneca	Arimidex	USD2.2bn	Seroquel	USD4.7bn	Symbicort	USD3.7bn	38
BMS			US Plavix Avapro	USD4.8bn USD1.3bn	Abilify	USD2.1bn	30
GSK	Advair	USD3.8bn			Avandia	USD2.5bn	23
Eli Lilly			Zyprexa	USD4.8bn			22
Merck	Cozaar/ Hyzaar	USD3.2bn			Singulair	USD4.5bn	22
Novartis	Femara	USD1.1bn			Diovan	USD6.0bn	14
Pfizer	**Aricept**	**USD800m**	**Lipitor** **Xalatan**	**USD12.1bn** **USD1.6bn**	**Viagra** **Detrol** **Geodon**	**USD1.7bn** **USD860m** **USD1.1bn**	**41**
Sanofi-Aventis	Taxotere	USD2bn	US Plavix Avapro	USD3.8bn USD2.1bn	Lovenox	USD3.1bn	34

Source: PriceWaterhouseCoopers (based on AXA Framlington data)

The COMCO approved the merger of Pfizer and Pharmacia on December 11, 2002 subject to certain remedies (WEKO, 2003). It stated that the merger would not considerably restrict actual competition and that potential competition exists within the Swiss pharmaceutical market. The imposed remedies obliged Pfizer and Pharmacia to divest the compound Darifenacin and transfer the rights of Pharmacia to develop and commercialize Apomorphine hydrochloride nasal spray for the treatment of erectile dysfunction (ED) to a competitor.

The EU decision in favour of the merger of Pfizer and Pharmacia was published on February 27, 2003 (European Commission, 2003). The merger was approved subject to certain commitments in order to alleviate anticompetitive concerns resulting from the proposed transaction. At that time, the merger investigation in the US was not yet completed. The US decision in favour of the Pfizer and Pharmacia merger was published on April 14, 2003 (FTC, 2003b). Again, the merger was approved subject to particular remedies. The pronounced remedies vary between Switzerland, the EU and the US.

The Pfizer and Pharmacia merger must be viewed in light of the general M&A activities in the global pharmaceutical industry. A few years before the Pfizer and Pharmacia merger other mergers have taken place in the Swiss pharmaceutical market such as Roche/Corange (RPW 1998/1), Hoechst/Rhone-Poulenc (RPW 1999/3) or Glaxo Wellcome PLC/SmithKline Beecham PLC (RPW 2001/2). As a consequence of the numerous M&A activities in the pharmaceutical industry and due to lag effects (such as the effects of mergers on innovation competition, or competition with future products) an isolated analysis of the effects of the Pfizer and Pharmacia merger becomes difficult.

3 A methodological framework to evaluate mergers

3.1 Overall merger evaluation: aims and methods

The economic literature on ex-post assessments of merger decisions identifies especially two key aims of such investigations (see generally LEAR, 2006). First, it should be established whether the merger decision of the competition authority has achieved the economic goal of the merger control regulation to a larger degree than any other alternative decision. Second, it

should be assessed whether the analysis of the competition authority behind its merger decision has been correct and complete.

To achieve the first aim, counterfactuals to the respective merger decision must be identified. Subsequently, the post-merger actual market developments should be compared with the market developments that would have taken place under alternative decisions. Finally, welfare should be measured and compared under the different scenarios.

To meet the second aim, major arguments that have led to a merger decision should be identified initially (for example, relevant market, possible anticompetitive threats and presence of any countervailing factors), followed by an evaluation of the validity of each of the major arguments. Finally, it should be verified whether the key arguments have been complete.

For the specific case of merger evaluation in the pharmaceutical industry it is necessary to focus on both, general merger effects analysis (in particular competition with regard to the actual products) and an analysis of the specific effects reflecting the industry's dynamic nature (in particular competition with regard to future products and innovation competition). In doing so, the specific issues of merger control in innovation intensive industries are also relevant for the ex-post evaluation of merger decisions in such industries. While the US merger control in research-intensive industries applies the 'innovation markets' concept (contained in the 1996 "Antitrust Guidelines for the Licensing of Intellectual Property" by the U.S. Department of Justice and the FTC), the European Commission does not have any specific guidelines and uses the 'future products markets' concept within the potential competition analysis under the general horizontal merger guidelines.

In sum, an evaluation of merger decisions in pharmaceutical markets should, on the one hand, investigate whether the merger had any anticompetitive effects (for example, significant price increases or changes in market shares). These are rather the short-term and mid-term effects of the merger. On the other hand, it should be examined whether the merger did not cause negative effects on innovation competition ('innovation markets' approach) and/or the potential competition with regard to future products ('future products markets' approach). These are rather the long-term effects of the merger.

The approaches to evaluate mergers in innovation intensive industries are not well established. The toolbox of possible methods for an analysis of the effects of a merger in traditional industries, which may be applied in dynamic industries as well, contains the following techniques:

Descriptive statistics analysis: This includes the analysis of market concentration, market shares, prices, etc. before and after the merger.

Compared to the traditional industries, an analysis of market shares might be less informative in innovation intensive industries. The dynamic nature of such markets makes an assessment more difficult. For example, a high market share today in a dynamic market does not necessarily imply the presence of market power tomorrow (OECD, 2001). It should also be noted that the prices of drugs in many countries are subject to regulation, which make it difficult to raise prices after the merger. Therefore, the analysis has to focus on products whose prices are not regulated.

Interviews: Companies (merging parties and their competitors) and business/customer associations can be interviewed to discover the impact of the merger on market developments or their predictions concerning what would have happened in the absence of the merger or under alternative remedy scenarios. Interviews enable access to information which may not be inferred through simple outside observance of the respective markets. Moreover, this information helps to facilitate a better interpretation of the observed statistical tendencies.

With respect to pharmaceutical markets, an understanding of the market functioning can be gained through conversations with industry experts. Interviews can be used in particular to analyze any anti-competitive effects of the merger on, for example, generics competition, market entry/market exit, or any efficiency gains from the merger and, thus, can help to get an impression on the overall welfare effects of a merger. Furthermore, effects of the merger on innovation competition or on potential product market competition can be identified from talks with industry insiders. These effects are usually difficult to observe for a researcher acting outside of the industry.

Empirical analysis: These methods mainly cover structural models and simulations, event studies and evaluation methods.[2]

Structural models may be estimated to simulate price and market share effects and quantify the welfare effects of a merger (for example, Hausman, Leonard and Zona (1994), Nevo (2000), Werden and Froeb (2006), OFT (2007)). Due to the high data and time requirements for structural models estimation and sophisticated simulations, the US and UK competition authorities often apply simple ‚back-of-the-envelope' formulas which allow a rough estimation of the (hypothetical) price effects of mergers (see for example, Nelson and Sun (2001) and OFT (2002))[3]. However, possible biases from using these formulas to calculate consumer savings should be taken into account.

The abnormal stock market performance of merging parties and their rivals is analysed around the time of merger announcements and antitrust challenges in so-called event studies (see for example, Duso et al. (2007a, 2010), Duso et al. (2007b)). Such studies may allow for a differentiation between efficiency and market power effects of mergers.

The conjunctive idea behind the so-called evaluation methods (for example, social experiments, natural experiments, matching methods, and instrument variable methods) is a comparison of the reactions to a merger between two groups of firms: a control group and an experimental group. Ceteris paribus, the identified differences in the performance of the two groups should give an estimate of the merger effects (see, for example, Ashenfelter and Hosken (2008), Ashenfelter et al. (2009) for an overview of the methodologies to estimate the price effects of mergers[4]).

Since each of the approaches described above has its merits and drawbacks and the approaches are in general not mutually exclusive but can complement each other, the preferred approach would be to apply more than one method in order to derive results from a merger evaluation as reliable as possible (see LEAR, 2006). Since this may not be always possible, the application of certain approaches will depend on data availability and the nature of the market.

Given the existing data constraints, a quantitative analysis of the effects of the Pfizer and Pharmacia merger and the estimation of welfare gains was not possible. In addition, only a few Swiss pharmaceutical companies and associations responded to our request for an interview. Therefore, our case study concentrates on the analysis of price and market share effects before and after the merger as well as its possible impact on investment behaviour, R&D, sales and employment. As part of the analysis, we contrasted the actual market developments after the merger against the predictions of the COMCO at the time of the decision to find out whether the merger decision was sound given the information the COMCO had available at that time, whether the reasoning behind the merger decision was

[2] A comprehensive description of these methods and their strengths and weaknesses can be found in LEAR (2006).

[3] On the calculation of consumer savings from US merger enforcement at the US Department of Justice, see, for example, Werden (2008). For an overview of the retrospective analysis at the FTC, see, for example, Farrell et al. (2009).

[4] See, for example, Weinberg (2007) for a survey of studies on the price effects of horizontal mergers.

clear and supported by the evidence, and whether the COMCO predictions about future market developments proved to be correct.[5]

3.2 Evaluation of remedies: aims and methods

Typically, remedies in merger cases are pronounced if there are competition concerns in certain markets affected by the proposed merger. Remedies should focus on maintaining competition at pre-merger levels. In an evaluation of the imposed remedies it should thus be examined whether the remedy has reached this objective (i.e., preserving effective competition), and whether it has reached this objective in the way expected by the competition authority at the time of the decision (i.e., the appropriateness and effectiveness of the merger remedy should be investigated). In case the results indicate that the remedy has not elicited the desired effect, subsequently the reasons for this failure should be examined in greater detail.

In an evaluation of the effectiveness of remedies, it is important to fully understand the reasons for the choice of the remedies. Furthermore, market developments before and after the imposition of remedies should be analyzed to investigate competitive effects of merger remedies and to infer about the overall impact of the remedy on competition. Finally, it should be examined whether the remedy has worked out the way it has been expected and conclusions should be drawn with regard to improving the effectiveness of remedies. In particular, the FTC, European Commission and UK Competition Commission have undertaken studies into the effectiveness of merger remedies (see FTC (1999), European Commission (2005), Competition Commission (2008b))[6]. However, these studies have not focused on the analysis of competitive effects of merger remedies.

The analysis of remedies in innovation intensive industries could differ from the analysis of remedies in traditional industries. In the pharmaceutical industry, remedies have often been pronounced in order to alleviate foreclosure concerns with regard to R&D input. In addition, remedies have also been imposed on products with current overlaps in order to remove competition concerns with regard to products already launched as well as with regard to products for which the merging company has promising R&D (see CRA, 2004).

Generally, the analysis of remedies for the products which are in the last stage of development and those products for which the new drug application has already been submitted can be evaluated in the short or medium term. The analysis of remedies with regard to products in an earlier development stage is often very complicated. Two aspects are of particular importance here: an estimation of the probability that the product will enter the market at all and an estimation of the success of the remedies. In general, the effects of remedies on innovation competition are often difficult to assess and can be evaluated only in the long run due to the long development periods and a great uncertainty concerning the success of the project.[7]

The appropriate methods for an analysis of the remedies in case of pharmaceutical mergers are similar to those of overall merger evaluation. These are interviews with firms and business associations, descriptive analysis of market concentration, market shares and prices in the markets with remedies as well as empirical studies (event studies, simulations, and evaluation studies). Interviews are an important method to investigate the potential market developments which would have occurred absent the merger remedies and under other counterfactual scenarios. An analysis of descriptive statistics may allow one to investigate the development

[5] A similar approach has been in particular applied by Deloitte (2009).

[6] Other relevant studies on merger remedies are, for example, OECD (2003b), Sullivan (2003) and Motta et al. (2007).

[7] For a more detailed discussion of the question whether the divested assets will become an effective source of competition in the case of competing R&D programs, see OECD (2001).

of prices and market shares in the markets where remedies had been imposed and hypothesize about competitive effects of merger remedies.

Stock market reactions around the final decision of the competition authority may be evaluated in order to draw some inferences about the outcome of the bargaining process between the competition authority and the merging parties (see Duso et al. (2007b)). Event studies may, thus, answer the question whether the remedies were imposed for the "right" mergers, i.e., mergers that increase market power, and help to evaluate the effectiveness of remedies looking at the profitability effects around the various decision dates. Pre- and post-divestiture performance may be compared in evaluation studies. Simulation of merger remedies (through changing the structure of the industry) is possible on the basis of estimating structural models and by applying more basic simulation tools.

In terms of related studies, two particular papers examine the effects of remedies in pharmaceutical markets. Morgan (2001) generally analyses the effects of mergers on innovation in the pharmaceutical industry, and in particular, takes a closer look at the effects of remedies for three mergers Glaxo/Wellcome, Upjohn/Pharmacia and Ciba-Geigy/Sandoz. She concludes that a careful design of merger remedies is necessary in cases of R&D projects and components.[8] In another study, Tenn and Yun (2009) analyse the success of divestitures relating to Johnson&Johnson acquisition of Pfizer's consumer health division in 2006 in the boundaries of the Pfizer and Pharmacia (2003) merger decision in the US. The authors find that, in general, the divestitures helped to maintain the level of competition which was observed prior to the transaction.[9] In addition, a sample of pharmaceutical mergers with remedies adopted by the European Commission (Hoffmann-La Roche/Boehringer Mannheim, Monsanto/Pharmacia&Upjohn, Sanofi/Synthélabo, Astra/Zeneca and Glaxo Wellcome/SmithKline Beecham) has been investigated by Davies and Lyons (2007) by applying basic simulation techniques. They find that "remedies are needed to restore competition, not just market structure".

In the case of the merger of Pfizer and Pharmacia, competition concerns have been pronounced by the COMCO regarding products that were still in development (either in earlier or later stages) and remedies were respectively proposed by the parties in those markets to solve the concerns. In this respect, section 5 below follows the aim of examining the effects of those remedies on competition in the respective pharmaceutical product categories. In order to attain this objective, especially the following questions will be answered:

1. What is the subject of the remedy?
2. What was the intention of the remedy?
3. Who bought the product subject to the remedy?
4. How did the market develop after the merger and with the remedies?
5. How would the market have developed without the remedies?
6. Evaluation: Were the remedies effective, were they necessary?

[8] The study is based on data contained in the merger decisions and obtained from a number of interviews supplemented by correspondence with competition officials, industry experts and practitioners.

[9] This study applies the so-called "before-and-after" and "difference-in-difference" estimators to analyze the impact of the divestiture on sales, retail distribution and prices.

4 The Pfizer and Pharmacia (2003) merger: Findings from the evaluation of the overall case

In this section, we first describe the merger notification by the COMCO and overlaps in the business fields of Pfizer and Pharmacia as well as the definition of the relevant markets, followed by a discussion of the COMCO predictions concerning market shares and actual developments in the entire Swiss pharmaceutical market and in individual pharmaceutical categories with competition concerns after the merger decision. Subsequently, the impact of the merger on generics competition, innovation competition, intellectual property rights (IPRs), sales, employment and investment is analysed. The section is concluded by an overall assessment of actual and potential competition comparing the COMCO predictions and actual market developments after the merger. This allows for the derivation of the final finding whether the analysis in the merger decision has been complete and correct.

4.1 Merger notification by the COMCO

Pfizer and Pharmacia were allowed to submit a simplified merger notification according to Art. 12 of the Swiss Merger Control Regulation (VKU) (WEKO, 1996). They were not subject to submit any information regarding the markets in which the market shares thresholds were lower than 20% (for markets in which both parties were active), or 30% (for markets in which one of the merging parties was active). Additionally, the parties proposed, firstly, that the Swiss merger notification should include only additional information which is not contained in the EU merger notification and, secondly, that the COMCO should generally take the EU merger notification into consideration during its investigation. Both proposals aimed at avoiding duplication of work by the merging parties and were accepted by the COMCO. However, it asked the merging parties to hand in additional information regarding their R&D activities.

4.2 Overlaps in the business fields of Pfizer und Pharmacia

Despite the large size of Pfizer and Pharmacia, there were only minor overlaps in the business fields of the companies before the merger (see Table 2).

Table 2: Overlaps in the business fields of Pfizer and Pharmacia

Pfizer	*Pharmacia*
General fields	
Development, manufacturing and marketing of medicines	Development, manufacturing and marketing of medicines
Prescription medicines	
Treatment of cardiovascular and infectious diseases	Arthritis
Central nervous system disorders	Overactive bladder
Diabetes	Parkinson's
Erectile dysfunction	Cancer
Allergies	Eye diseases
Arthritis	Hormonal imbalances
Non-prescription medicines	
Painkillers	Drugs against nicotine addiction
Colds	Hair loss
Sleep problems	Colds (nasal sprays)
Skin and eye care	Vitamin deficiency
	Fungal diseases
Other	
Animal healthcare products	Animal healthcare products
Confectionary products like chewing gums, bubble gums, mints and cough drops	Diagnostic products, blood test systems, fine chemicals and biopharmaceutical activities

Source: COMCO merger decision (published in RPW/DPC 2003/2)

As a result of the merger, the product portfolio of Pfizer was enlarged. Before the merger, Pfizer had a number of own important products such as Zoloft, Lipitor and Viagra. Due to the merger, Pfizer incorporated Pharmacia products such as Celebrex, Beztra, Detrol, Nicorette, Rogaine and Luden. 11 out of 12 combined blockbuster drugs of Pfizer and Pharmacia are patented until 2010 (New York Times, 2002). The pipeline of products in the last stage of development was enlarged by a number of promising Pharmacia products (such as Eplerenone, Parecaxib, and CDP-870).

According to the decision of the COMCO, the business field of confectionary products like chewing gums, bubble gums, mints and cough drops should be sold in the medium term. The FTC has pronounced a separate remedy for over-the-counter cough drops, namely the divestiture of the Halls cough drop business to Cadbury Schweppes. Pfizer and Pharmacia were the only two significant competitors in this market. However, for this business field, no remedies were pronounced in either the Swiss or the EU merger decisions.

In 2006, Pfizer sold its business unit Consumer Healthcare (which belonged to Pharmacia before the merger) to Johnson&Johnson together with the announcement of its intention to focus on the pharmaceutical business (Pfizer, 2006). With this step, Pfizer aims to intensify internal R&D as well as the development of a selection of new drugs. Pfizer has also planned to continue to buy products and technologies which could promote the long-term growth of its business. After the merger, Pfizer purchased products, product candidates and technologies, in particular in such therapeutic fields as Alzheimer's, diabetes, obesity and infectious diseases.

4.3 Definition of the relevant markets

The relevant product market was defined by the COMCO on the basis of the therapeutic classes of the Anatomical Therapeutic Chemical (ATC) classification with "level 3".

According to the ATC classification, human pharmaceutical products are grouped into the respective therapeutic groups according to the organ or system which they affect and/or their chemical and therapeutic characteristics. The ATC classification was also used by the European Commission and the FTC in their respective merger investigations.

In individual product categories, the pharmaceutical markets can be defined more broadly or more narrowly. In the US and the EU decisions, a further delineation of the market was undertaken, for example in the market for ED drugs (prescription vs. non-prescription products, pills vs. injections in the EU merger decision) or in the market for incontinence drugs ("extended release" products which are to be taken once or twice a day vs. products which are to be taken three times a day in the US merger decision).[10]

The key difficulty in an assessment of competition for products currently under development is uncertainty. There are many compounds at the beginning of the product development cycle, however, in each development stage, the number of the possible compounds is reduced. Even in the clinical tests stage, there is a high probability that a product will not enter the market. Thus, the existence of a product in the development stage may not necessarily lead to actual competition in final consumer markets in the future. For this reason, the European Commission has decided to consider only the products in the final stages (Phase III) of the clinical trials (OECD, 2001) in their merger analyses. A further uncertainty arises from the fact that the decision into which ATC category a product falls is made only shortly before market approval.

The geographically relevant market was defined to be national in scope in the COMCO merger decision. This is also a widely used practice of the European Commission. Although there is a trend toward standardization at the European level, national markets are still distinct markets with price differences due to different administrative procedures, price regulation, reimbursement policies, and differences in brand, sizing and distribution systems (see EU merger decision (European Commission, 2003)). At present, the procedure of defining national geographic markets in such a way appears to be a reasonable approach in this industry. With regard to future products, the European Commission defined the markets to be at least European Economic Area (EEA) or even worldwide in scope since research and development activities are usually performed at the global level.

While the COMCO followed the approach of the European Commission and the FTC in their investigation of the case, it had applied internationally recognized methods for defining the relevant markets in the pharmaceutical industry. It further takes into account the numerous specifics of this market – in particular the high uncertainty with regard to new products.

4.4 Analysis of market shares, concentration and prices

In this section we analyze the changes of the market shares in the overall Swiss pharmaceutical market as well as market shares and price changes in the individual product categories and compare them with the COMCO predictions. This allows us to assess whether the analysis of the competitive effects in the merger decision has been correct. To conduct the analysis, we used data from IMS Health Switzerland on sales revenues and quantities of drugs to calculate average prices and market shares of drugs.

4.4.1 Analysis for the entire pharmaceutical market

The COMCO expected that after the merger, Pfizer and Pharmacia would advance from - at that time - positions six and eight to the second largest player in the Swiss pharmaceutical

[10] Another definition of the relevant market could be distinguishing original drugs from generics, as suggested in, for example, Stern (1996). Such an approach would be an example for a broader market definition.

market (see Table 3). Post-merger, according to 2006 IMS Health Switzerland data, Pfizer is the second largest company in the Swiss pharmaceutical market.

Table 3: Switzerland: Market shares for the total market

Rank before (after)	*Company*	*Market share in the total market, % (estimate)*	*Rank 2006*	*Market share in the total market, % (actual 2006)**
1 (1)	Novartis (Pharma&Consumer Health)	5-10	1	10.7
2 (-)	**Pfizer&Pharmacia**	5-10	2	7.3
3 (2)	AstraZeneca	5-10	4	6.7
4 (3)	GSK Pharma	5-10	3	6.8
5 (4)	Roche Pharma Schweiz	5-10	6	5.5
6 (5)	MSD-Chibret	5-10		
- (6)	**Pfizer**	0,1-5		
7 (7)	Sanofi-Synthelabo	0,1-5		
- (8)	**Pharmacia**	0,1-5		
8 (9)	Janssen-Cilag	0,1-5		
9 (10)	Bristol-Myers/Squibb	0,1-5	11	2.3
10 (11)	Aventis Pharma	0,1-5		
	Sanofi-Aventis		5	6.2
	Johnson&Johnson		10	2.7
	Merck&Co		8	3.5
	Bayer Healthcare		9	2.9
	Merpha		7	3.8

Source: COMCO merger decision (published in RPW/DPC 2003/2), 2006 data from IMS Health Switzerland

*Note: * APO/SD/SPI/DRO Index, Swissmedic A, B, C, D, Z including vaccines.*

MSD-Chibret belongs to Merck&Co. Janssen-Cilag is a subsidiary of Johnson&Johnson. Sanofi-Synthelabo and Aventis merged in 2004.

According to the VKU, in order to be able to evaluate the potential effects of a merger, all relevant markets must be analyzed in which one of the merging parties holds a market share of at least 30% or in which both parties together reach a market share of at least 20%. Such an analysis must include the sales and demand structure as well the R&D role in the respective markets. In the Pfizer and Pharmacia merger case, a number of product markets with potential competition concerns were identified. Some products in these categories are recorded in the so-called SL-list (Spezialitätenliste), which includes all prescription drugs. The prices for drugs on the SL-list are fixed by the Federal Office of Public Health (BAG). For these SL-list products, no price effects as a result of the merger are to be expected. However, although the regulated prices of existing drugs remain constant in the short-term, the negotiating power of Pfizer could be strengthened after the merger. Consequently, there could be a tendency to fix higher prices in future negotiations. Insofar the prices could be higher post merger than they would be without it. However, such an effect could at best be identified in the long term in comparison to other firms or other markets. The prices of all other products (the so-called over-the-counter drugs) are not regulated.

For most of the drugs in our sample (especially for the regulated ones), no significant price changes after the merger could be observed based on our data. Due to the minor price variation, it was not reasonable to conduct empirical estimations regarding the impact of the merger on market prices. Likewise, merger simulations of price changes were not sensible.

The COMCO found that the increase in the market shares due to the merger would be either minor or there existed important competitors in the respective markets which could challenge the position of the merged entity. As previously mentioned above, the expiry of patents, the introduction of new products and generics competition can lead to quick and substantial changes in the market shares. After the merger the market shares of Viagra, Caverject and Norvasc have considerably decreased. The market shares of the other products, especially of the regulated ones, have remained relatively stable between 2001 and 2005.

In sum, one can deduce that COMCO assessment has been largely correct as reflected in the post-merger market developments.

4.4.2 Analysis for individual markets

In the following, a few individual pharmaceutical categories are discussed in more detail. In particular, the markets G2A Oxytocics and A7A Intestinal antiinfectives are analyzed because the prices in these product categories are not regulated. Thus, some effects of the merger on prices could be expected. Furthermore, two other product markets, namely G4B3 products for the treatment of ED and G4B4 products against urinary incontinence, are investigated more closely because remedies were imposed in these markets to solve general competition concerns and with respect to innovation behaviour in particular. For each of these product categories, the market before the merger is described on the basis of the COMCO predictions, followed by a comparison of the prices and market shares of the respective drugs before and after the merger to investigate whether the merger may have had any impact on competition in these product categories.

1) Market G2A: Oxytocics

COMCO description of the market before the merger

The market G2A Oxytocics was defined at the level ATC-3. This is a product category in which both merging parties were active. Pharmacia alone had a market share of above 30% with the products Prostin E2, Prepidil and Prostin F2 Alpha. Together with Pfizer's product Pitressin (share of 0.1-10%), both firms would have reached a total market share of 40-50% (see Appendix, Table 8). The COMCO predicted that the increase in sales volume as a consequence of the merger would be minor. Besides, there existed several competitors within this product category, who could exercise competitive pressure on the merging parties.

Developments of prices and market shares after the merger

The prices for Pfizer's products Prepidil and Prostin E2 have remained stable before and after the merger (see Appendix, Figure 5). The price for Prepidil remained constant at CHF50. The price for Prostin is volatile.

The market shares of Pfizer have decreased from 15.5% in 2001 to 10.3% in 2005 (see Appendix, Table 9). Novartis Pharma was able to secure its dominant market position after the merger.

2) Market A7A: Intestinal antiinfectives

COMCO description of the market before the merger

The market A7A Intestinal antiinfectives was defined at the level ATC-3. This is a product segment in which only Pfizer was active with its product Humatin and had a market share of more than 30% (see Appendix, Table 8). Remarkably, Pfizer and its competitor Drossapharm were able to considerably gain market shares in the period 2001/2002. This was at the expense of Abbott and Sanofi-Synthelabo who withdrew their products from the market in 2001/2002. This market is an example for the frequently observed pharmaceutical market characteristic that market shares can be volatile despite a high concentration at a certain point in time. Thus, a dominant market position today may not necessarily imply such a position in the future. The COMCO stated that other producers in this market would exercise competitive pressure on Pfizer and Pharmacia post-merger, first and foremost Drossapharm with its 40-50% market share.

Developments of prices and market shares after the merger

The prices for Pfizer's Humatin have remained stable before and after the merger as well as the prices of its competitors such as Bioforce with Gastronol and Drossapharm with Neomycine (see Appendix, Figure 6).

The market shares of Pfizer have increased between 2001 and 2005 (see Appendix, Table 9). Abbott's product is no longer in the market and its market share was almost entirely distributed to Pfizer. After the merger, the market share of Pfizer grew further. In the period from 2001 to 2005, the market share of Drossapharm was subject to considerable fluctuations.

Generally, the analysis of the data shows that Pfizer has strengthened its market position. This example provides an additional illustration of the frequently observed volatility of market shares in pharmaceutical markets. Market entries and exits can change the market structure significantly in a relatively short period of time. As previously described above, this makes the market definition as well as the assessment of potential competition a challenging endeavour.

3) Market G4B3: Products for the ED treatment

COMCO description of the market before the merger

In the COMCO merger decision, the market 'products for ED treatment' was defined at the level ATC-4. Both Pfizer and Pharmacia were present in this market. Pfizer's Viagra had a market share of 90-100% and Pharmacia's Caverject a share of 0.1-10% (see Appendix, Table 8). The COMCO has observed that both of the products of the merging parties do not directly compete with each other. Pharmacia's Caverject (in injection form) and Pfizer's Viagra (in oral dosage form) are not viewed as 'close enough' substitutes. Caverject is usually needed in those cases where Viagra is contra-indicated and/or provides no results. The merger is therefore not expected to significantly affect the existing market position of Pfizer.

The COMCO had, however, competition concerns in relation to a substitutive product of Pharmacia in the development stage – Apomorphine hydrochloride nasal spray. This product could be assigned to a market relatively reliably, since the same product in the form of pills (Uprima) was already in the market and competed directly against Viagra. In comparison to Uprima, Apomorphine is only another dosage form of the product. Thus, the probability that the new product will appear in this category was very high. In order to ease competition concerns, Pharmacia suggested divesting this product.

In terms of the general market developments, the COMCO stated that new competitors' products (Abbott's Uprima, Eli Lilly's Cialis, Bayer Schering's Levitra) would enter into the market and thus erode Pfizer's market share.

Developments of prices and market shares after the merger

The prices of Pfizer's Caverject and Caverject DC were stable before as well as after the merger (see Appendix, Figure 7). Both products can be found on the SL-list; the prices of the other products in this product category are not regulated. In the period from 2001 to 2005, the prices of Viagra have increased by 10.5%. Since January 2003, the price of Viagra has increased by 6.6%. The prices for the competitors' products Cialis (Eli Lilly) and Levitra (Bayer Schering) have increased considerably in the same time period. The price of Cialis has increased by 52.4% since market entry and the price of Levitra by 35.1%.[11]

Pfizer's market share in this product category has decreased considerably from 97.4% in 2001 to 60.7% in 2005 (see Appendix, Table 9). Since its market entry in 2004, Eli Lilly's Cialis gained significant market share leading to 23.7% in 2005. Bayer's Levitra has also become a strong competitor of Viagra. The low market shares of Uprima can be explained with some serious side effects of the product.

4) Market G4B4: Products for the treatment of incontinence

In the COMCO merger decision, the market of 'products for the treatment of incontinence' was defined at the ATC-3 level. At the time of the merger notification only Pharmacia was active in this category with its product Detrusitol (see Appendix, Table 8). Pfizer was not active in this segment, but the product Darifenacin was already in the last development stage (Phase III of the clinical tests). The COMCO stated that Detrusitol and Darifenacin must be considered as close substitutes. It was anticipated that in the event of market entry, the dominant market position of Pharmacia with a market share of 50-60% would further be strengthened. Madaus was the only company among the other four competitors in this market which had a significant market share of about 20-30%.

Given the identified competition concerns, Pfizer and Pharmacia offered to divest Darifenacin. The COMCO stated that, if this remedy is implemented, there is no further need to define an innovation market.

In the EU merger decision (European Commission, 2003), some possible competitors were mentioned who also develop products for the respective market: Schwarz Pharma with the product Fesoterodine, and AstraZeneca with a compound in the development phase. However, lack of data and information for this product category foreclosed a closer investigation of the market developments after the merger as well as possible impacts of the divestiture on competition in this product category.

To sum up, the analysis of market developments before and after the merger in individual product categories has shown that the arguments and predictions of the COMCO have been sound given the information available at the time of the merger decision. The post-merger market developments showed no unexpected price or market share increases and therefore raise no doubts on the correctness of the merger decision.

[11] Due to the increasing prices of Viagra, Levitra and Cialis, in 2006 the COMCO initiated an investigation whether particularly the recommended retail prices for ED drugs, which are published in the database of e-mediat AG (Galdat, Pharmavista), factually act as a device to fix prices. The investigation was opened against Pfizer AG, Bayer (Schweiz) AG und Eli Lilly (Suisse) SA, e-mediat AG, wholesalers Galexis AG, Unione Farmaceutica Distribuzione SA, Voigt AG, Amedius-UE SA, as well as against pharmacists and SD-physicians. In 2009, the COMCO confirmed that the recommended retail prices led to the fixing of resale prices for ED drugs and imposed a fine of CHF 5.7.m on Pfizer, Eli Lilly and Bayer.

4.5 Analysis of innovation competition

An analysis of innovation competition involves an assessment whether a merger would lead to more or less innovation. While conducting such an analysis, it should be taken into account whether the merging parties have a larger or smaller incentive to invest in R&D and how the incentives for the competitors are possibly affected. Considering the long lead times, an immediate post-merger increase of the R&D effort can rather not be expected. On the contrary, it could be the case that running projects are terminated so that the products at the development stage are not pursued further. One reason for such behaviour could be that the merging firms already have a comparable product so that an additional product would not create an additional market but would possibly instead lead to in-firm cannibalization. Exactly due to such fears, the Pfizer and Pharmacia merger has been approved subject to the imposition of remedies.

In the medium and long run, it is likely that R&D in the merged firm will be restructured. If a duplication of certain tasks can be avoided, the efficiency of R&D activities will likely increase. To achieve this goal, scientists with complementary abilities from the previously independent firms have to work together. Additionally, the higher cash flow of a larger firm can be used for new projects which would have been too large or too risky for one of the independent firms prior the merger. Consequently, in such cases, only the merger makes the implementation of some research programs feasible.

However, contrary to this line of reasoning, a merger can also decrease R&D incentives. In the first place, such an effect could occur in cases in which the most important competitor in the development of new active substances ceased to exist due to the merger. Furthermore, it could also be the case that a consolidation of IPR portfolios creates a significant market entry barrier which successfully deters competitors from entering the market dominated by the merged company. For this reason, the imposed divestitures consider IPR portfolios. As part of the realization of merger synergies, some R&D institutions (laboratories, personnel) might be closed after the merger (see CRA, 2004). Although in theory, R&D efficiency gains can overcompensate the welfare losses created by anticompetitive effects, empirical evidence seems to suggest that such cases occur rather seldom.

With the proposed merger, Pfizer was striving to realize significant synergies in the field of R&D. It was expected that the previous activities of both companies would complement each other very well and that no impairment of the R&D activity in general or within the individual product categories was anticipated. Since both companies are active worldwide and innovation markets are usually defined on a global level, the R&D analysis was conducted on the global level. In the 2005 R&D ranking of pharmaceutical companies, Pfizer occupied the first place, followed by GlaxoSmithKline, Sanofi-Aventis and Johnson&Johnson (see Table 4).

Table 4: Ranking of pharmaceutical companies according to R&D investments, 2005

Company	*R&D, m British pounds*	*R&D/sales*
1. Pfizer, USA	4334.81	14.5
2. Johnson & Johnson, USA	3676.81	12.5
3. GlaxoSmithKline, UK	3136.00	14.5
4. Novartis, Switzerland	2822.69	15.0
5. Sanofi-Aventis, France	2778.62	14.8
6. Roche, Switzerland	2521.44	16.1
7. Merck, USA	2241.38	17.5
8. AstraZeneca, UK	1968.20	14.1
9. Eli Lilly, USA	1762.29	20.7
10. Wyeth, USA	1601.46	14.7

Source: DTI (2006)

Complementary to the general ranking of pharmaceutical companies according to R&D investments in Table 4, the subsequent Table 5 displays the R&D expenditures of Pfizer and Pharmacia before and after the merger. The data shows that R&D expenditures are in general very volatile. Thus, fluctuations of the joint R&D expenses cannot be directly interpreted as a reaction to the merger. Nevertheless, it can be stated that post-merger, Pfizer has not significantly reduced its R&D expenditures. This indicates that the R&D activity remains on a similar level as before the merger. The talks with industry insiders also confirmed this finding: R&D competition has neither strengthened nor weakened due to the merger. The effect that there is one competitor less in the market is countered by the fact that the larger firm can also tackle larger research projects which were not within the realms of possibility for either one of the two firms before the merger. In sum, it is difficult to say which effect prevails in the Pfizer and Pharmacia case, but no short-term negative effect can be observed. Furthermore, innovation intensity - as measured by the ratio of R&D to sales - has not changed considerably after the merger.

Table 5: Innovation indicators of Pfizer and Pharmacia before and after the merger

Year	*Company*	*R&D, m British pounds*	*Joint R&D, m British pounds*	*Patents*	*R&D/ sales*	*Joint R&D/ Joint sales*
1993	Pfizer	658.60		90	0.13	
1994	Pfizer	728.28		70	0.14	
1995	Pfizer	929.02	1736.42	86	0.14	0.16
1995	Pharmacia & Upjohn	807.40	1736.42	74	0.18	0.16
1996	Pfizer	984.05	1723.84	119	0.15	0.16
1996	Pharmacia & Upjohn	739.79	1723.84	76	0.18	0.16
1997	Pfizer	1171.75	1911.39	131	0.16	0.17
1997	Pharmacia & Upjohn	739.64	1911.39	73	0.18	0.17
1998	Pfizer	1369.76	2090.40	186	0.17	0.17
1998	Pharmacia & Upjohn	720.64	2090.40	58	0.18	0.17
1999	Pfizer	1722.41	2612.15	226	0.20	0.20
1999	Pharmacia & Upjohn (new name: Pharmacia)	889.74	2612.15	125	0.20	0.20
2000	Pfizer	2968.94	4811.89	257	0.15	0.15
2000	Pharmacia	1842.95	4811.89	178	0.15	0.15
2001	Pfizer	3346.45	4908.86	211	0.15	0.15
2001	Pharmacia	1562.41	4908.86	180	0.16	0.15
2002	Pfizer	3215.11	4680.42	204	0.16	0.16
2002	Pharmacia	1465.31	4680.42	227	0.17	0.16
2003	Pfizer	3983.58	3983.58	106*	0.16	0.16
2004	Pfizer	4002.29	4002.29	5*	0.15	0.15
2005	Pfizer	4334.81	4334.81		0.15	0.15

Source: R&D DTI Scoreboards for various years, own calculations

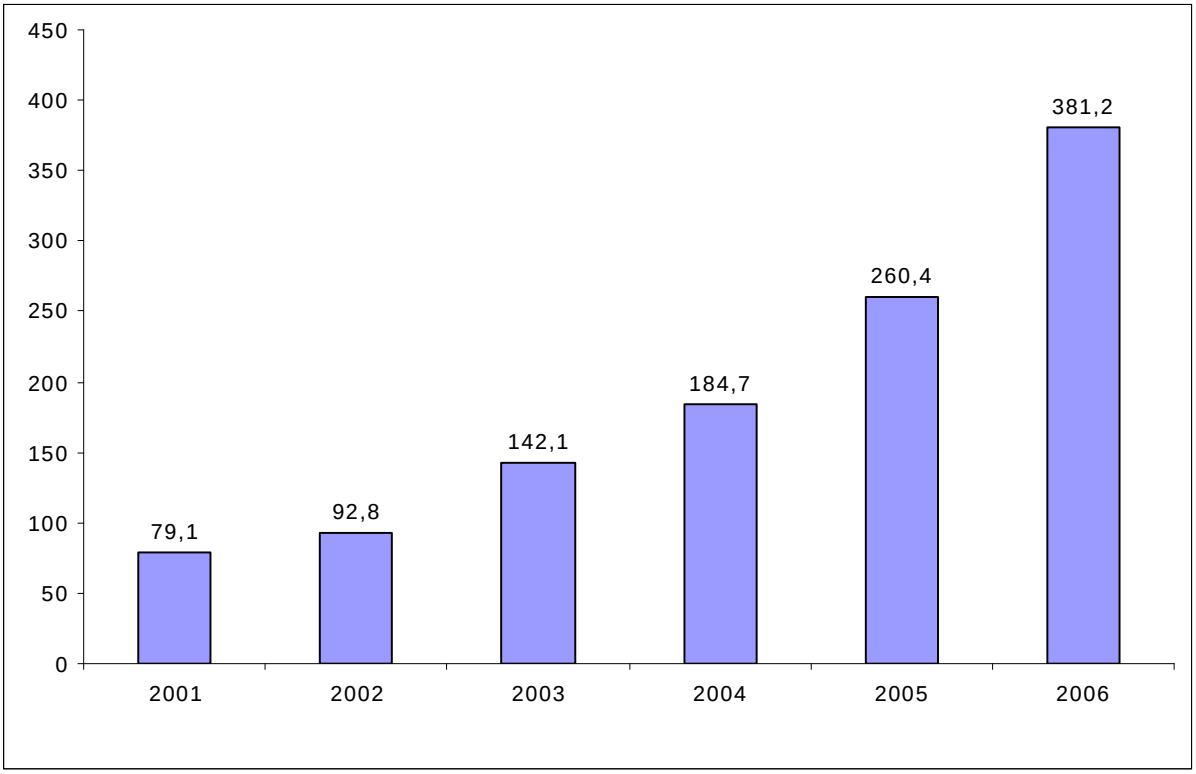
*Note: *Patent applications are published with a delay of 18 months. The grant of a patent can take further 18 months or considerably longer so that the numbers for 2003 and 2004 must be considered as tentative.*

4.6 Analysis of generics competition

An assessment of the impact of the merger on generics competition belongs to the standard merger investigation framework conducted by the European competition authorities (European Commission, 2008). While studying the ex-post effects of mergers, the development of the generics market should be analyzed under the merger decision and alternative scenarios (i.e., how the generics market would have evolved without the merger).

The market for generics covered by health insurance has grown considerably during the past years in Switzerland - a development which could have increased the competitive pressure on the brand-name drugs producers. In 2006 alone, it has increased by 46.4% in comparison to 2005 (see Figure 4).

Figure 4: Switzerland: Generics market, m CHF



Source: Pharma-Markt Schweiz (Issue 2007)

Note: The numbers are based on ex-factory prices

It is difficult to isolate the effects of different mergers and market factors on generics competition. With respect to the merger of Pfizer and Pharmacia, it can only be observed that a number of new products which were introduced in the Swiss pharmaceutical market, have in fact been products of generics drugs producers which directly compete with Pfizer's products (in particular in the product categories R05F cough suppressants and expectorants, combinations, R01B nasal decongestants for systemic use, and C08A calcium antagonist plain).

The available information does not allow one to answer the question whether Pfizer renounces the introduction of generics while the original drug was previously offered by Pfizer.[12] The behaviour of Pfizer in product markets for which the patent has expired can be observed, for example, in the market C2A, i.e., market for products against high blood pressure. In this market, Pfizer offered Cardura and Minipress, whereas Pharmacia was present with its products Loniten and Nipruss. For Minipress, Loniten and Nipruss, patent protection for the active substances they contain, has expired. Therefore, even if, due to the merger, competition among these drugs is deferred, producers of generic drugs could offer products with the same active substance. Currently, Pfizer is selling Cardura and Loniten. Schwarz Pharma is selling Nipruss. Minipress is not recorded on the list of the products sold by Pfizer Switzerland.

4.7 Analysis of IPRs

Patents can be used to foreclose a market for competitors. With a merger, a joint patent portfolio can be created which covers potential substitute products to the extent that competitors cannot introduce competing products to the market. Thus, patents can be used as an entry barrier since the firms who would like to become active in a specific market depend

[12] In Pfizer's Financial Report (Pfizer, 2004) it has been mentioned that in 2004 Pfizer sold certain European generic pharmaceutical businesses.

on IPRs. Unresolved IPR issues have been named as one of the key issues that often threaten the commercial viability of the purchaser of the divested assets (see European Commission, 2005).

In the market for ED drugs, the patent rights were not clearly defined and allocated at the time of the merger decision. After the success of Viagra also Pharmacia, among several other companies, was working on the development of ED drugs. The European Commission had concerns not only regarding the strong market position of Viagra, but also regarding the ongoing patent disputes connected with Viagra[13], which could have impeded the market entry of actual and potential competitors. The FTC confirmed this general concern in their investigation and argued that the patent disputes would make market entry by companies other than Pharmacia unlikely or at least delay it for a period of up to two years.

With regard to content, it was disputed whether Pfizer has protected the oral administration of the drug since this would not be an invention.[14] After granting the method-of-use patent EP-B-0702555, containing claims for the use of any PDE inhibitor for the manufacture of an ED oral treatment, a number of companies filed a complaint, among them Bayer Schering and Eli Lilly. This complaint was sustained and the patent was revoked. Pfizer appealed this decision on October 11, 2001. This claim by Pfizer was dismissed on February 3, 2005.[15]

The merging parties proposed to divest Pharmacia's product at the development stage which would fall into the same market as Viagra. Such an unconditional remedy is reasonable in so far as there is no uncertainty about the behaviour of the merging parties. With this divestiture, Pharmacia has no possibility to impede or to delay the development of the product since it could compete with in-house Viagra. For the purchaser of the new product, the only risk is the development success and not the scope of protection by patents connected to the product.[16]

At the time of the merger notification, the patent which could have prevented entry of substitutes of Viagra was cancelled. Under these circumstances, the divestiture of rights for Apomorphine according to Schedule V of the EU merger decision (European Commission, 2003) contributes to the growth of a substitute product by a competitor. With a decision in the patent proceedings which would have revoked the cancellation of the patent, the rights for the ED nasal spray would have lost value for a competitor to Pfizer as it would not have led to the introduction of a new product on the market without additional licensing rights. In this case, rather the in-house development of the nasal spray would have led to a market introduction.

Meanwhile – after the approval of the Pfizer and Pharmacia merger – substitutes of Viagra have entered the market: Cialis (Eli Lilly), Levitra (Bayer Schering) and Uprima (Abbott) as has been mentioned before.

4.8 Analysis of the effects on sales, employment and investment

In its decision, the COMCO stated that Pfizer and Pharmacia could realize a substantial synergy potential in the field of sales and marketing. This was justified by a larger financial power and a wider range of products offered by the merged company. Table 6 displays that the joint sales of Pfizer and Pharmacia - after a decrease in 2003 - has almost reached the

[13] Particularly, Pfizer has commenced patent litigation proceedings in the US against a number of competitors. These competitors were developing products similar to Viagra. Pfizer has filed a protest against the decision of the European Patent Office since its European patent was declared void due to this decision.

[14] According to Article 52 (1) of the European Patent Convention, "European patents shall be granted for any inventions, in all fields of technology, provided that they are new, involve an inventive step and are susceptible of industrial application" (European Patent Office, 2007).

[15] See http://legal.european-patent-office.org/dg3/biblio/t011212eu1.htm.

[16] This is the case because a patent in the pharmaceutical field defines the property rights much more precisely than in other industries such as, e.g., the semiconductor industry. The basic explanation for this observation is that an active ingredient is described by a molecule. Thus, it is immediately evident whether an active ingredient is protected by a patent or not.

level of 2002 by 2004. However, in order to draw stronger conclusions regarding the possible effects of the merger, a longer period of time should be investigated.

Table 6: Employment, sales and investment of Pfizer and Pharmacia before and after the merger

Year	*Company*	*Employment*	*Joint employment*	*Sales, m British pounds*	*Joint sales, m British pounds*	*Capital expenditures, m British pounds*
1993	Pfizer			5054		
1994	Pfizer			5293		
1995	Pfizer			6454	10929	
1995	Pharmacia & Upjohn			4475	10929	
1996	Pfizer			6607	10800	
1996	Pharmacia & Upjohn			4193	10800	
1997	Pfizer			7407	11410	
1997	Pharmacia & Upjohn			4003	11410	
1998	Pfizer			8140	12202	
1998	Pharmacia & Upjohn			4062	12202	
1999	Pfizer	51000	82000	8769	13269	
1999	Pharmacia & Upjohn (new name: Pharmacia)	31000	82000	4500	13269	
2000	Pfizer	90000	149000	19798	31944	1466.87
2000	Pharmacia	59000	149000	12146	31944	907.86
2001	Pfizer	90000	149600	22272	31825	1536.77
2001	Pharmacia	59600	149600	9553	31825	697.37
2002	Pfizer	98000	141000	20109	28801	1085.89
2002	Pharmacia	43000	141000	8692	28801	704.05
2003	Pfizer	122000	122000	25243	25243	1468.91
2004	Pfizer	115000	115000	27354	27354	1359.09

Source: R&D DTI Scoreboards for various years, own calculations

With respect to employment effects, a decrease in the number of employees worldwide after the merger is evident: in 2004 this number has decreased by 18.4% in comparison to 2002. In other studies, it has been stated that employment in the merged company on average reduces by 8-13% after the merger (see CRA, 2004). However, no evidence was found that the Pfizer and Pharmacia merger led to significant layoffs in Switzerland. Although no information has been found on the number of employees for the merged company in Switzerland, the overall figures on employment in the Swiss pharmaceutical industry do not show any downward trend in recent years. On the contrary, according to the Swiss Federal Statistical Office, the number of employees engaged in production and wholesale and retail trade with pharmaceutical products has been increasing between 1995 and 2005 (see BFS, 2007).

The joint capital expenditures of the merged company worldwide have decreased. This may be attributed to the reorganization of the company, optimization of global manufacturing and product rationalization that has taken place after the merger. Duplicative facilities, functions, organizations and systems were eliminated following the merger (see Pfizer 2003 Financial Report (Pfizer, 2003)). The merger may have pre-empted the resources necessary for the

commissioning of new investments and reduced competitive pressure to install new capacity to maintain or gain market shares.

4.9 Overall evaluation of actual and potential competition

Summing up the key findings of the overall evaluation of the merger, Table 7 compares the COMCO predictions of the effects of the Pfizer and Pharmacia merger with the actual developments in the Swiss pharmaceutical markets.

Table 7: Summary of the analysis

Overall evaluation of actual and potential competition according to COMCO predictions	*Actual developments after the merger*
Overall evaluation of actual competition	
The market share increases due to the merger are either minor or there are other important competitors in the respective markets	This corresponds to the actual developments after the merger
It was stated that competition could only be restricted in the product categories G4B3 and G4B4 (in G4B3, due to Pfizer's high market share and the development of a follow-up product by Pharmacia, and in G4B4, due to Pharmacia's high market share and the development of a follow-up product by Pfizer)	Pfizer has lost market share in the market for ED drugs
The market structure is rather stable but varies in the different product categories	This corresponds to the actual developments after the merger
The merger will not lead to the creation or the strengthening of a collectively dominant market position	Generally true (however, an investigation regarding the recommended retail prices for Viagra, Levitra and Cialis was initiated)
The merger can lead to an increased competitive pressure on different production and distribution levels from manufacturing to retail (physicians, pharmacists, drugstores, hospitals)	No evidence for an increased competitive pressure was found
Pfizer and Pharmacia will have more funds for R&D as well as for sales and marketing than their competitors. No impairment of the R&D activity is to be anticipated (with the exception of G4B3 and G4B4)	Pfizer's R&D expenditures have slightly decreased; no impairment of R&D activity was detected
Pfizer and Pharmacia can also realize a substantial synergy potential in the field of sales and marketing	Data restrictions foreclosed an analysis of possible synergy effects
All in all, the merger will not restrain actual competition considerably	This corresponds to the actual developments after the merger
Overall evaluation of potential competition	
Market entry costs are very high (due to, e.g., the high development costs of a drug, the high development risks and further costs and time exposure for the registration at Swissmedic)	True
Nevertheless, possibilities for market entry are present given the numerous potential competitors of Pfizer and Pharmacia who can penetrate market segments dominated by Pfizer and Pharmacia (e.g., smaller, more	True, although Pfizer possesses an important patent portfolio which could impede market entries

specialized firms or new generics competitors)	
In sum, potential competition is existent in the Swiss pharmaceutical market	This corresponds to the actual developments after the merger

Overall, no considerable impact of the merger on actual or potential competition in the Swiss pharmaceutical market was found. The market structure seems to be rather stable overall, however, varies within the different product categories. The competitive situation has been correctly assessed by the COMCO - for example, with respect to the presence of market entry barriers or the role of potential competition. Generally, the dynamic structure of the market often complicates the interpretation of market share developments after the merger.

5 The Pfizer and Pharmacia (2003) merger: Findings from the evaluation of the remedies

5.1 Description of the remedies

The COMCO approved the merger of Pfizer and Pharmacia under the condition that the companies divest the compound Darifenacin as well as transfer the rights of Pharmacia to develop and commercialize Apomorphine hydrochloride nasal spray for ED treatment to a third party. These remedies aimed at solving the competition concerns in the market of products for the treatment of incontinence and in the market of ED drugs. Respective references were made to Schedule III and IV of the EU merger decision (European Commission, 2003), although it was not approved officially at the time of the COMCO merger decision.

5.2 Analysis of the effects of the remedies

5.2.1 The market „Products for the treatment of ED“

At the time of the merger notification, Pfizer's Viagra had a dominant position in the market for ED drugs. Moreover, Pfizer was already developing the second generation of Viagra-like products for this market. Pfizer's dominant position could have been strengthened with the additional product of Pharmacia, namely Apomorphine hydrochloride nasal spray. In order to solve the competition concerns in this market, the parties suggested transferring the rights of Pharmacia to develop and commercialize this product on a worldwide basis as well as Pharmacia's exclusive world-wide licence to Nastech's patents and patent applications directed to the formulation of the nasal spray (see Schedule IV of the EU merger decision).

In 2002, Apomorphine was in test phase II of the clinical trials. It was anticipated that the new administration of the product could remove some disadvantageous effects of the current Apomorphine-based product Uprima. According to the data available, since March 1, 2005 Uprima has been taken off the Swiss market. The inhalation-based Apomorphine – due to the non-invasive method of administration (nasal spray) – could become a potential alternative to Viagra and harbour a significant future growth potential.

In the EU merger case analysis (European Commission, 2003), the interviewed experts stated that both products, Apomorphine and Dopamine D2 receptor, have good prospects to enter the market. Both of these Pharmacia products could negatively affect actual and potential competition, however, only in the case that Pfizer maintains its currently strong market position and patent litigation disputes in this product category cannot be terminated. Furthermore, the experts mentioned that Pharmacia was also developing two non-PDE5 products for the ED treatment.

According to Schedule IV of the European Commission, the rights for Apomorphine were to be transferred to Nastech Pharmaceutical Company. The COMCO adopted this divestiture in exactly the same way in its decision. Moreover, in order to guarantee its implementation, Pfizer was ordered to support Nastech financially and technically regarding the product. In 2003, Nastech had reclaimed its rights regarding Apomorphine and intended to find a new partner for the product development (Nastech, 2003a).

In June 2003, Nastech announced the initiation of a Phase II dose-ranging safety study using intranasal Apomorphine hydrochloride for the treatment of ED. The purpose of the study was to investigate incremental doses of the product in order to establish the maximum tolerated safe dosage and to determine specific doses to be investigated in future clinical studies. The study was not aimed to make any efficacy assessments. This dose-ranging safety study is one of several studies designed by Nastech and Pharmacia in accordance with their discussions with the US Food and Drug Administration (FDA) to advance the ED program toward pivotal Phase III trials and to commercialization. Nastech was mentioned to be in discussions with certain major pharmaceutical companies to re-partner the product for worldwide development and commercialization (Nastech, 2003b). In July 2003 Nastech received a "Notice of Allowance" from the US Patent and Trademark Office for a patent application relating to "Nasal Delivery of Apomorphine" (Nastech, 2003c). In March 2004 Nastech received positive results from a Phase II maximum tolerated dose study, initiated in June 2003. The following step for this program had been to submit this data together with protocols for further studies to the FDA and to obtain regulatory guidance on a program intended to permit the development, and if successful, approval and marketing of the nasal spray (Nastech, 2004).

There were some predictions by analysts that the drug could reach the market by late 2006, however the drug is still not on the market and no additional information on the current status of the product - especially as to when Apomorphine could be expected to enter the Swiss market - were found. It is therefore not yet possible to evaluate whether the Apomorphine divestiture has been successful. It is only possible to state that Nastech has enough experience in this field, partly due to a former cooperation with Pharmacia.

5.2.2 The market „Products for the treatment of urinary incontinence"

At the time of the merger notification, Pharmacia's Detrusitol held a dominant position in the market of drugs for the treatment of urinary incontinence. During this period, Pfizer's Darifenacin was in the last development stage and the merger could have strengthened the dominant market position of the merged entity. In order to solve the competition concerns in this market, Pfizer and Pharmacia offered to divest the product candidate Darifenacin worldwide.

According to Schedule III of the European Commission - which has been adopted by the COMCO in exactly the same way - Novartis bought Darifenacin (Novartis, 2003).[17] In the US, the new drug application for Darifenacin, under the name Enablex, was submitted in December 2002, approved in 2003, and the product entered the US market in 2004. In Europe, the product entered the market in 2004 under the name Emselex (Novartis, 2004).

The FTC's investigation concluded that Novartis is a competent company to continue Pfizer's development efforts and act as buyer of Darifenacin assets without individual competition concerns. Unfortunately, no data was available for this market for our study which would

[17] In Pfizer's Financial Report (Pfizer, 2003) it has been mentioned that Novartis had bought Darifenacin for USD 225 m. Pfizer received USD 50 m after signing the transaction, while the rest of the amount were to be paid when and if Darifenacin receives regulatory approvals.

have allowed a closer evaluation of the effectiveness of the divestiture in this market, or at least assess the current market position of the divested product.

In the EU merger decision, a couple of companies have been mentioned which were working on similar products, among them Schwarz Pharma with the product Fesoterodine and AstraZeneca. Even though Pfizer had to transfer the rights for Darifenacin, Pfizer's commitment still seems to exist in this market since it was announced that the purchase of a competitor product of Darifenacin is considered by Pfizer.[18] In fact, Pfizer has bought exclusive world-wide rights for NCE Fesoterodine from Schwarz Pharma. Both firms have resolved all patent litigation disputes and patent claims with regard to this product.

5.2.3 Overall evaluation of the remedies

Regarding Darifenacin, one might conclude that the remedy was successful. The product has entered the market although - due to the lack of data - it remains an open question as to how successful this market entry has been. However, Novartis has sufficient experience in this product category and thus seems to be a good choice as buyer of Darifenacin.

The success of the Apomorphine remedy is even more difficult to judge. Nastech has a lot of experience in the field, but it intended to find another partner for the product development. However, it remains unclear whether such a partner has been found or what major obstacles have been encountered during the search process. Furthermore, there has been no publicly available information on the further development of this product since 2004. However, generally, the market for products for the treatment of ED has two strong new competitors – Eli Lilly and Bayer Schering – and as a result, Pfizer has considerably lost market share in the last couple of years. In this respect, one might raise doubts whether the divestiture of Apomorphine was really necessary to solve the competition concerns.

Since both remedies were proposed by the merging parties, an investigation as to whether the same effect could have been achieved with weaker interventions is not necessary. Only Pfizer's efforts to introduce a competitive product for the sold product Darifenacin to the market could be seen critically. A temporary non-competition clause which would have given the buyer of the rights for Darifenacin a sufficiently long period of time to bring a competitive product into the market would have been worth consideration. In retrospect, it was revealed that with Novartis, a competent buyer for Darifenacin was found. Thus, Pfizer's efforts concerning Fesoterodine could be viewed as harmless. In the event that Darifenacin would not have developed into a competitive product that quickly, a deployment of the COMCO decision could have pronounced a temporary non-compete clause. This assessment holds under the provision that an equivalent regulation is not contained in the EU decision within the scope of the censored "fall-back" remedy.

The general extent to which the COMCO may or can adopt the decision of the European Commission systematically should be considered from a legal point of view. In the present case, the chosen approach was reasonable. However, risks might still be contained in case this practice is thoughtlessly applied to future merger cases. The EU merger decision could be more detailed than the Swiss merger decision and pronounced undertakings could be withdrawn or weakened after the deployment of the COMCO has already been pronounced. In order to forestall such a case it is necessary to determine the minimum requirements for undertakings related to the Swiss market. In doing so, it could be ensured that the effective EU remedies meet the requirements in the Swiss market. It can be anticipated that globally active firms such as Pfizer rather meet the stricter commitments by the European Commission

[18] See http://www.medicalnewstoday.com/articles/41688.php.

in order to be allowed to stay active in the European market than renounce the European market to meet possibly less strict Swiss commitments and focus solely on the Swiss market.

Conversely, a stricter commitment in Switzerland involves the danger that a firm completely retreats from the Swiss market since it would potentially invoke a loss to a lesser degree than to renounce the European market – a possibility which must also be taken into consideration. In the present case, the pronounced commitments are based on suggestions by the applicants. Thus, it can be assumed that the merging parties are unlikely to take any actions to abuse those commitments. The COMCO was also not exposed to the danger that its remedies were stricter than in the decision of the European Commission. However, what generally needs to be taken into account is that the merging parties typically have substantial information advantages with respect to the likely effect and consequences of merger remedies.

6 Conclusion

The ex-post assessment of merger effects is a hot topic in antitrust law and economics. On the one hand, such analyses allow the identification of structural problems in the assessments of competition authorities and therefore contribute to the continuous improvement of practical antitrust policy. On the other hand, ex-post assessments of merger effects allow the estimation of the welfare contributions of antitrust policy through comparisons of the actual development after decisions and the counterfactual scenarios of no investigations and decisions.

Against this background, the paper studies the effects of one particular merger, namely the merger of Pfizer and Pharmacia (2003) on competition in the Swiss pharmaceutical market and compares the assessment of the Swiss Competition Commission (COMCO) with the post-merger market developments. We basically find that the merger did not have a huge influence on the overall competitive landscape of the Swiss pharmaceutical market. This key finding is driven by the fact that the product portfolios of both companies show only two cases of critical overlaps and subsequent potential anticompetitive effects. In both cases, remedies were implemented which prevented the companies from strengthening their dominant market position.

In particular, the imposed divestiture in the ED drugs market prevented that patent rights alone could have hindered market entry of new products. The patent issue was not subject to any assessment of competitive effects and as a consequence, the competition authority would not have been able to intervene for a possible case of market foreclosure. In case of the market for drugs for the treatment of urinary incontinence, a strengthening of the dominant market position of Pharmacia with its product Detrusitol could have been avoided by the divestiture. With Novartis, a competent buyer was located which has already introduced the product to the market.

In the other markets which showed significant overlaps in the business fields of both firms or in which one of the firms had a dominant market position, no effects of the merger can be expected either due to the existing price regulation in the Swiss pharmaceutical market or due to changes in Pfizer's product portfolio. Furthermore, it is important to note that some potential effects of the merger on market parameters such as innovation behaviour, R&D efforts or employment can be at best analyzed on the global company level. A conclusion on the effect of the merger on these parameters cannot be isolated with the data at hand.

In sum, it can be said that the COMCO was correct in its assessment of the overall impact of the merger on competition in the Swiss pharmaceutical market. Generally, the case study raises the question how mergers should be assessed from the competition authorities' point of view when the merging firms are headquartered abroad and these firms have a strong global presence. Many effects take place on the global level such as the development of innovation

and marketing strategies. Therefore, the undertakings must often be viewed as active on an international or world-wide market. Within this context, the question of an appropriate organization of international cooperation between competition authorities arises. Specifically, overlapping areas in merger control investigations should be detected to avoid the duplication of efforts and to make efficient use of the existing resources and expertise of the competition authorities - and also to minimize the administrative burden imposed on the merging parties.

Although this paper has focused on an ex-post evaluation of a single merger decision, it nicely illustrates the fundamental problems of ex-post studies. In order to fully evaluate the work of the competition authority in a particular case, detailed data (and complementary information) is necessary to allow the use of more sophisticated econometric techniques. However, such information is typically difficult to acquire, largely due to data confidentiality issues. Furthermore, it should be reminded that this paper focused on an assessment of a single merger and therefore does not allow any conclusion on a more general level. An evaluation of the overall merger enforcement policy in Switzerland or another country is forced to use a much larger sample of mergers in order to allow the derivation of broader conclusions about the state of merger control and possible reform needs.

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8 Appendix

Table 8. Market shares before the merger, % (as contained in the COMCO merger decision)

Company	*1999-2000*	*2000-2001*	*2001-2002*
Market G2A			
Pfizer	0.1-10	0.1-10	0.1-10
Pharmacia	30-40	40-50	30-40
Novartis	30-40	40-50	40-50
Schering AG	20-30	10-20	10-20
Market A7A			
Pfizer	10-20	10-20	30-40
Pharmacia	-	-	-
Abbott	20-30	30-40	0.1-10
Drossapharm	20-30	20-30	40-50
Sanofi-Synthelabo	20-30	10-20	-
Bioforce	0.1-10	0.1-10	10-20
Market G4B3			
Pfizer	80-90	90-100	90-100
Pharmacia	0.1-10	0.1-10	0.1-10
Abbot	-	-	0.1-10
Astra Zeneca	0.1-10	0.1-10	0.1-10
Market G4B4			
Pfizer	-	-	-
Pharmacia	40-50	50-60	60-70
Madaus	20-30	20-30	20-30
Sanofi-Synthelabo	10-20	10-20	0,1-10
Pierre Fabre	0.1-10	0.1-10	0.1-10
Novartis	0.1-10	0.1-10	0.1-10

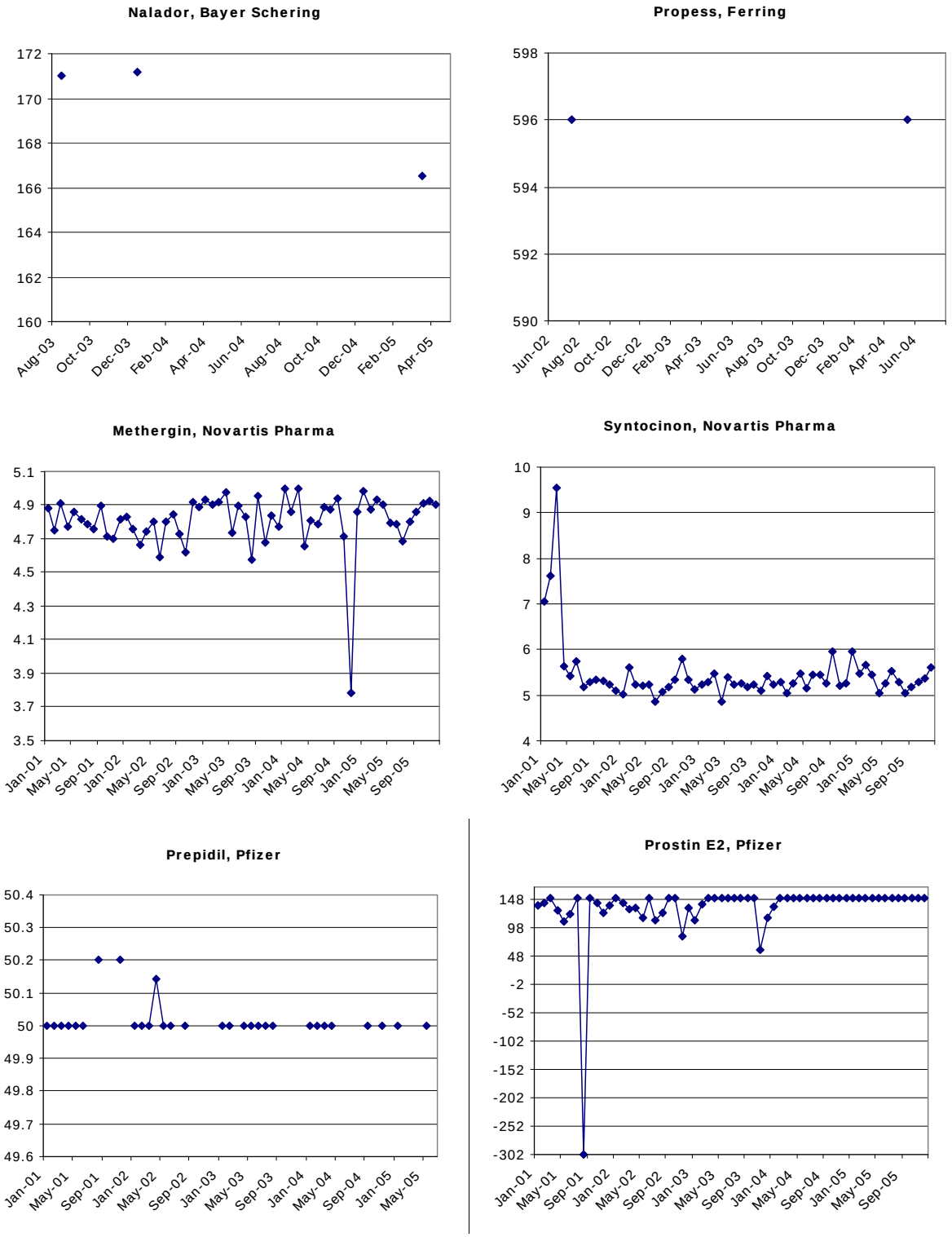
Source: COMCO merger decision (published in RPW/DPC 2003/2)

Table 9. Market shares before and after the merger, %

	2001	*2002*	*2003*	*2004*	*2005*
Market G2A					
Bayer Schering	0	0	0.9	0	0.4
Novartis Pharma	84.5	84.7	85.3	85.5	89.4
Pfizer	15.5	14.7	13.8	13.4	10.3
Ferring	0	0.5	0	1.1	0
Market A7A					
Abbott	25.8	0.05	0	0	0
Bioforce	23.9	29.0	28.1	26.3	28.3
Drossapharm	25.2	32.8	30.9	25.4	24.9
Pfizer	25.2	38.2	41.1	48.4	46.8
Sanofi-Aventis	0.2	0	0	0	0
Market G4B3					
Abbott	0	5.5	2.2	0.6	0.01
Bayer Schering	0	0	4.0	15.9	14.5
Eli Lilly	0	0	0	9.6	23.7
Meda Pharma	2.6	2.1	1.5	1.2	1.0
Pfizer	97.4	92.5	92.3	72.7	60.7

Source: IMS Health Switzerland, own estimations

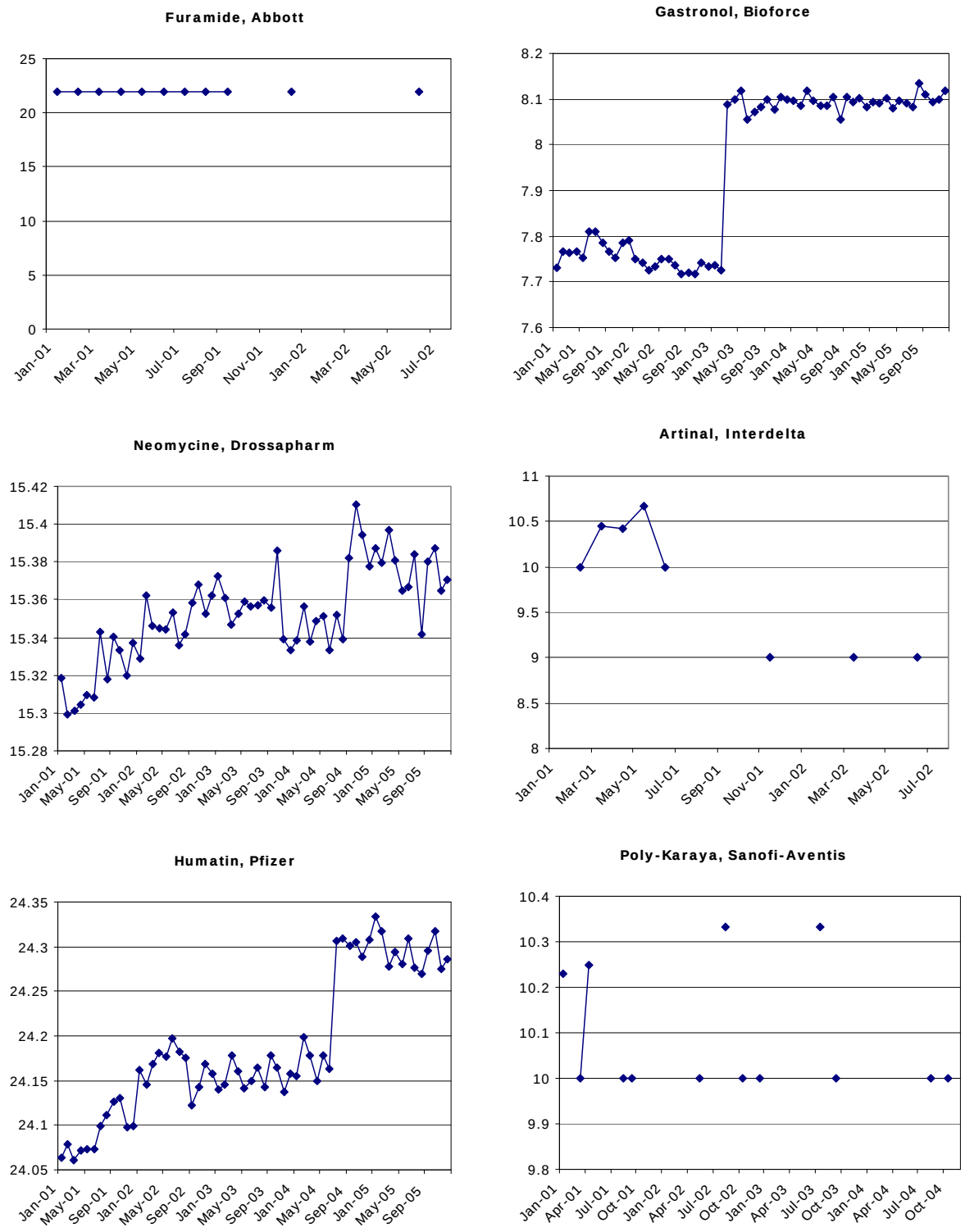
Figure 5: Market G2A: Price developments before and after the merger, CHF



Source: IMS Health Switzerland, own estimations

Note: An average price for each drug is calculated as the ratio of sales revenue and quantity sold

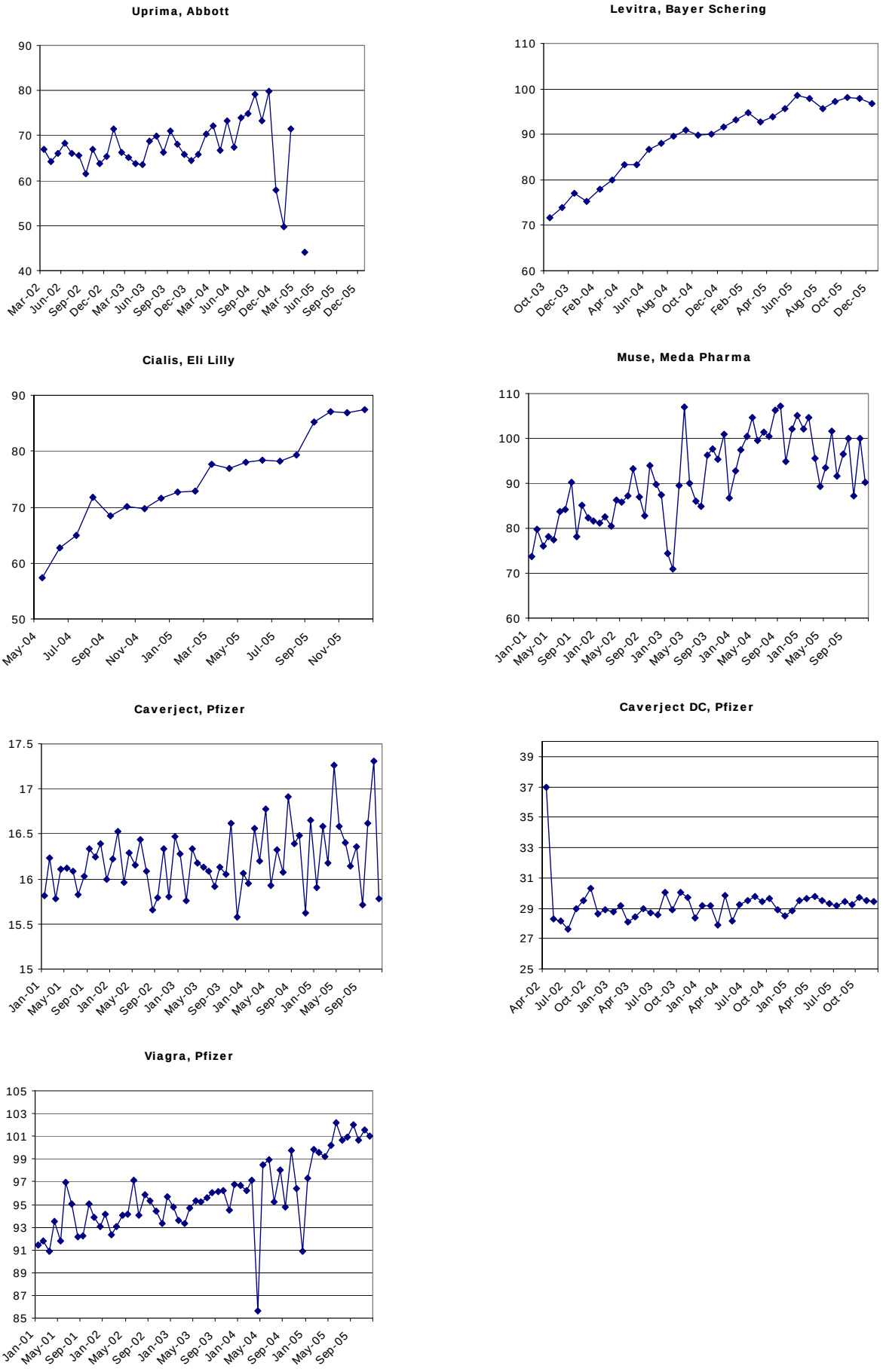
Figure 6: Market A7A: Price developments before and after the merger, CHF



Source: IMS Health Switzerland, own estimations

Note: An average price for each drug is calculated as the ratio of sales revenue and quantity sold

Figure 7: Market G4B3: Price developments before and after the merger, CHF



Source: IMS Health Switzerland, own estimations

Note: An average price for each drug is calculated as the ratio of sales revenue and quantity sold