

**Budapest University of Economic Sciences and Public Administration
Business and Management PhD Program**

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Competitiveness at Industry Level

In the Light of Globalization

PhD Thesis

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Budapest, September 2000

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Acknowledgements

A PhD thesis is a completion of a longer research process and starting point of a new one. It is an opportunity to assess so far results and to give an overview of the road led there. In this section I would like to say thanks for those persons who contributed the completion of this work over the past years. With my acknowledgements I would like to express my gratitude for those whom I learnt most in the past ten years.

The empirical part of my thesis deals with the Hungarian economy, more precisely with the pharmaceutical industry in the period of 1989-1998. From certain respect my thesis can be considered as result of this period. This period can be characterising as a very intensive learning process in education and research from both my own respect and that of my working place, the Department of Business Economics. This learning process touched upon my thesis, as well. I would like to assess briefly who were those persons who contributed most to preparation of my thesis by mentioning them by their names.

Fellows of Department of Business Economics among them persons not belonging to the Department any more contributed to the greatest extent to preparation of my thesis. The activity of my Department was influenced by curriculum development until the launching the *In Global Competition* research program. Curriculum development activity was also about research. In developing and introducing two core subjects 'Business Economics' and 'Strategic Management' I especially learnt a lot from my colleagues. Professor *József Kindler* has influenced my view by emphasising importance of disclosing assumptions. Ms. *Erzsébet Könczöl* got me acquainted with strategic management and she made my Department familiar with Porter's book on competitive strategy at the end of the 1980s. Based on her practice with enterprises she reminded continuously on the balance of theory and practice. I owe a lot of thanks to Professor *László Reszegi* and Professor *József Bayer* who have contributed to the development of my business orientation. Prof. Reszegi has done that by his courses on performance evaluation and Prof. Bayer by his lectures and our joint projects.

I am thankful to Professor *Herman Daems* of Catholic University of Leuven for deepening my knowledge on formulating strategy and Michael Porter's works. I met him during my Soros scholarship in the academic year of 1992-1993. He also commented my so far results of industry competitiveness in the spring of 1999 and he suggested analysing the pharmaceutical industry in my thesis. Thanks to Professor *Jean-Paul Larçon* to give me an opportunity for discussing the methodological issues of the research project on competitiveness of industries with his fellows of his department in a research seminar at HEC (Jouy-en-Josas, France). The company of *scholars* of natural and liberal art sciences was influential in the *Collegium Hungaricum in Leuven* in the academic year of 1992-1993 and in the spring of 1999.

Workshops *In Global Competition* research program in 1995-1997 induced me to broaden the approach of industry competitiveness. This is due to the discussions with the seven other project leaders and workshops on working papers. I am grateful to the members of the consultative committee of my research project and the authors of case studies on industry competitiveness. I also appreciated the contribution of research fellows, business and governmental people for participating in the workshops on case studies. Ms. Erzsébet

Könczöl and Professor *Ádám Török* refereed the final report on my research project the opinions of whom I am grateful.

I learnt a lot from my MBA students who selected me as a supervisor of their dissertations. Most of them chose topics, which represented a new challenge in both national and international practice and theory. I am thankful for the business leaders gave lectures in my full time Strategic Management course.

Thanks for *József Berács* Director of and *József Temesi* Academic Director of International Studies Centre of BUESPA for having involved me into the work of the multidisciplinary Curriculum Development Committee in 1997. In this job I was made study several text books on different subjects and I could learn a lot from other members of the Committee.

There were several written and oral comments on my thesis proposal. Thanks to the examiners, Professors *Zoltán Antal-Mokos* and *János Vecsenyi* for their valuable written and oral reports. Thanks to Professors *András Bauer*, *András Blahó* and *Gábor Papanek* for expressing their opinions on my thesis proposal in written form.

Professors *Károly Balaton*, *György Boda*, *Mária Kovács* and *László Reszegi* made invaluable comments and suggestions in completion my PhD thesis. I am grateful to my Head of Department, Professor *Mihály Gálik* for releasing from my administrative jobs. Ms. *Zsuzsa Takó* and Ms. *Rita Ruschel* helped with word processing.

Last but not least I am obliged to Professor *Attila Chikán* who was my supervisor and first boss for the longest period in my academic carrier. I am grateful for the opportunities he offered in working with the Research Group of Business Economics and the Department of Business Economics. I am thankful for involving me in the *In Global Competition* research program. I appreciated his trust, respecting my initiatives, and his critical but supporting opinions on my works.

Naturally all the professional and technical mistakes and misunderstandings might be found in this work remain the responsibility of the author of the PhD thesis.

1. Examined problems and the structure of the thesis

The PhD thesis is the result of a research work lasted several years. It is closely related to the *In Global Competition – Microeconomic Factors of Competitiveness of the Hungarian Economy* research program led by Attila Chikán in 1995-1997. In this program I led the research project on industry competitiveness. The most important findings of the research program on the Hungarian economy were that the Hungarian economy is a market economy and the most important challenge of the economy is that of the globalisation. The thesis proposal (Czakó, 1999) presented the theoretical frameworks and my so far research findings based on the program.

Based on findings of international research projects and that of the *In Global Competition* research program I came across the problem of how globalisation influences the competitiveness of national industries. Meanwhile it was an unexposed issue what competitiveness means at national, industry and company level and how one can examine them. These two complex problems resulted in three discussed themes in my thesis:

1. How can competitiveness be defined and examined?
2. What kinds of competitiveness criteria are brought about and what opportunities are created in global industries, especially in the Hungarian economy?
3. How did local companies in the competitive pharmaceutical industry adapt to the evolving market economy and globalisation in the 1990s?

As *In Global Competition* research program examined the transformation of the Hungarian economic system at micro level (Chikán, 1996) the applied methods were mainly qualitative, especially case study method. In consequence of my topic selection the thesis does not want to verify model or analyse the relationships among various factors within a model. From now on instead of hypothesis I use research questions. My main research questions are the following

1. *How can competitiveness be defined and examined?*
 - 1.1 Can research projects on competitiveness be explained in the traditional frameworks of economics and business studies? Has competitiveness approach brought a paradigm shift?
 - 1.2 Can we talk about system paradigm¹ change as result of globalisation? Globalisation means spreading global (transnational) corporations.
 - 1.3 Intention of the Hungarian economy for joining the European Union (EU) raise the question what competitiveness means for the EU and how it comes to light in its policy and operations.
2. *What kinds of competitiveness criteria are brought about and what opportunities are created in global industries especially in the Hungarian economy?*
 - 2.1 How can global industries be analysed? How does globalisation change our so far knowledge in this field?

¹ Based on Kornai (1999) system paradigm is defined as a system of thoughts, based on which one deals with social or human relationships. In examining these relationships the circumstances influencing the activity of a defined group of people are of importance.

2.2. Traditional export oriented industries in Hungary (like chemical, pharmaceutical or textile industries) are global industries. What are the most important pressures for adjustment of the industry leader companies in a small open economy like the Hungary.

3. *How did local companies in the competitive pharmaceutical industry adapt to the evolving market economy and globalisation?*

Research project on competitiveness of selected Hungarian industries pointed out that the flagship industries of the socialist regime have remained competitive, as they have preserved their position in the Hungarian exports in the 1990s (see Czakó, 1997). Based on this statement I wanted to examine the following questions in the pharmaceutical industry.

- 3.1. What kinds of environmental changes made the pharmaceutical industry adapt in the second half of the 1990s?
- 3.2. In a global industry context how does the definition of ‘Hungarian pharmaceutical industry’ modify?
- 3.3. How can one assess the international competitiveness of a small national industry on a global scale especially when the small national industry is important in its small home economy?

Analysis of the above listed questions are presented in the thesis in the following structure:

The Chapter 2 summarises the main features of the competitiveness research projects. The benchmarks of the review are those that were carried out in the United States and especially one that was led by M. E. Porter (1990). This chapter examines research questions 1.1 and 1.2.

The Chapter 3 gives an overview on the approach to the competitiveness of the EU. I emphasize those issues that are likely to be instructive for the Hungarian economy. This chapter is to give answers to the question 1.3.

The Chapter 4 is about the Hungarian findings and researches. I focus on themes which resulted in similar conclusions as the competitiveness research and that were published in Hungarian language papers at the end of 80s and in the 90s.

The Chapter 5 gives an overview on the methodology and the most important statements of the Competitiveness of Selected Hungarian Industries research project. This chapter sets hypotheses that will be examined in chapter 6.

The Chapter 6 consists of three subchapters. Chapter 6.1 is about the global industries where main features of global corporations are also discussed. This chapter is to deal with the questions 2.1 and 2.2. Chapter 6.2 is a case study on the competitiveness of the Hungarian pharmaceutical industry that belongs to a global industry. Based on chapter 5, and Chapters 6.1 and 6.2 Chapter 6.3 sums up the main conclusions on the competitiveness of the Hungarian pharmaceutical industry in the 1990s.

At the end of each chapter a bibliography can be found.

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2. Characteristics of competitiveness research

One of the greatest challenges to competitiveness research is the need to synthesize the theoretical and conceptual backgrounds. Two facts indicated that during my research. I found scientific and non-scientific works with different approaches under the heading of competitiveness and I also found works on subjects other than competitiveness dealing with it. In my opinion, it can be explained by that the Harvard school of competitiveness that I follow appeared in the middle of the 1980s. Since then there have been several loosely defined schools examining the same phenomena in the works published in this field.

These statements were particularly true when the *In Global Competition* research program was launched.² There were heated debates about the relevance of competitiveness research (see e. g. in Krugman, 1996). It seems that the authors of those times agreed in *what* the phenomenon to analyze was, since the starting point of each work was the deteriorating position of the USA in the world economy. It was indicated by the country's market share loss its export markets and the growth of the imports and inward foreign direct investment in the US economy. The debates about competitiveness mainly covered the following issues: which scientific field was competent to examine the phenomenon and on what kind of theoretical bases and with what kind of scientific methods should it be examined?

I found that the debates in the United States can also be traced back to the following factors:

- The investigated phenomenon (deteriorating position of the American economy in the world economy) was the subject of research at several levels, that is, it was a subject of international, macro- (dealing with national economies), micro- (dealing with industries), and company-level investigations.
- Research projects applied mainly qualitative methods like descriptive statistics, case studies and field research.
- The research was defined as applied research, and the pragmatic objective of their conclusions was to support both economic policy and the executives of the largest corporations in improving competitiveness.
- The competitiveness concept used but not defined precisely by the research projects altered from the competitiveness concept of economics, because it strongly emphasized the non-price-based components of competition.

The theoretical and practical developments in the 1990s attest that competitiveness research has been focusing on the American economy's conversion into an open economy, and has intended to define how this phenomenon should be treated in

²Chapters 1 and 2 of my thesis proposal discussed the characteristics of competitiveness research on the basis of works of e.g. Scott-Lodge, 1984; Dertouzous et al., 1989; Francis, 1989; and Porter, 1990. These works were considered to be the point of reference when starting the *In Global Competition research program*. Chapter 1 summarized the theoretical background of competitiveness research, discussing the approaches of economics and business studies, of competitiveness and economics, and of competitiveness and business studies. Chapter 2 of the thesis proposal described three major competitiveness research projects carried out in the US on the basis of the results published in the 1980s (Scott-Lodge, 1985; Dertouzous et al., 1989; and Porter, 1990).

economic policy and at business level. In parallel with that globalization emerged and required both academic and practical treatment.

Since the end of World War I the Hungarian economy has been regarded as an open economy. However, at the beginning of the 1990's its international economic position diminished and the economy faced a significant recession due to collapse of COMECON and its transition into a market economy. The competitiveness research started in 1995 aimed at formulating suggestions to the business community and government in the transition economy, on the findings of the research on enterprises and industries. The debates about the competitiveness in the *In Global Competition* research program raised additional issues besides the factors in international debates, which can be summarized as follows:

- The lack of clarification of and changes in the interpretations, the body of knowledge, and the scopes of economics and business studies;
- The issue of proper research methods matching the peculiar economic, political, and social conditions of the transition economy. It raised the question of whether it is fruitful to apply the approach of competitiveness school developed in the United States when its theoretical roots are unexplored (Török, 1996).

Completing my thesis proposal, I concluded that competitiveness research modified the paradigms of economics and business studies. Since this thesis investigates the Hungarian economy in the 1990s, I have to take into account the changes of the Hungarian economy, society, and legal system as well, which, according to Kornai's (1999) interpretation, makes us focus on the system paradigm. Kornai does not give a notion for system paradigm. He introduces the concept in connection with the transition economies of several former socialist countries. He refers to Khun's work (Khun, 1984) when reviewing the history of his concept. Khun introduced the notion of paradigm and paradigm shift in science without defining it. According to Khun (Khun, 1984), a paradigm can be observed in the works of scientists employing the same or closely related concepts and methodology. Kornai traces back the system paradigm to Mises', Hayek's, Polányi's, and Schumpeter's works (Mises, 1981; Hayek, 1991; Polányi, 1997; Schumpeter, 1942) who investigate social conditions and human interactions, and consider the circumstances to be of significant in making certain groups of people behave in a certain way (Kornai, 1999, pp. 585-89). According to Kornai, the main features of the system paradigm can be summarized as follows (Kornai, 1999, pp. 590-91):

- The whole system or the relationship between the whole and a certain part of it is in the center of the investigation, and narrow partial analysis does not fall into the area covered.
- The investigated problem cannot be squeezed into the framework of any traditional branch of science.
- Institutions existing for a long term, in the frameworks of which the economic, political, and cultural events and processes take place, hold researchers' attention.
- The system paradigm requires the understanding that there is a strong relation between an organization and the historical process that created it.
- In the system's approach the preferences of the individuals are mainly the outcomes of the system. If the system changes, the preferences will change as well.

- The system paradigm deals with the issue of great changes and large-scale transformations: what kind of disintegrative processes are going on in a system as a result of that the system ceases to exist and it is transformed into another system?
- Researchers working in the framework of the system paradigm realize that systems have system-specific drawbacks.
- One of the most typical research methods of the system paradigm is comparison that is usually qualitative. The system paradigm does not use mathematical models; however, it is ready to face mysteries avoided by economics for instance.

János Kornai points out in respect of the Hungarian economy that the system paradigm “has been proven to be indispensable for investigating the issue of transition. The conceptual framework of the analyses has been put together by the following concepts and concepts similar to them: socialism and capitalism, state property and private property, command economy and market economy, bureaucracy and entrepreneurship, redistribution and the consumer’s freedom of choice. Just like Moliere’s *“Le Malade Imaginaire”* who did not know he had been speaking in prose until his philosopher-adviser informed him about it, a significant part of researchers dealing with post-communist countries are unaware of the fact that they do not speak the language of their own discipline, but rather that of the system paradigm” (Kornai, 1999, p. 592). Continuing his argumentation, he claims that now when the post-socialist transformation is over, the system paradigm can be used in the investigation of several issues. Some of them are interesting for this thesis as well. For example (pp. 594-96):

- Analyzing the alternatives within the capitalist system,
- Microcosms having a number of problems like those of big systems, such as healthcare for instance, and
- The global historical transformation of the large-scale capitalist system.

The topic of this thesis coincides at two points with the approach of János Kornai (Kornai, 1999):

- Competitiveness research has brought a change of paradigms the essence of which introduced here in advance is the gaining of ground of macroeconomic and economic-policy aspects of open economies in the mainstream literature of economics, mainly due to the fact that the economy of the United States has become an open economy.
- The phenomenon of globalization, its complexity, and the fact that it is difficult to examine is the other factor due to which we can interpret competitiveness research as a root of a paradigm-shift. Here I refer only to the spreading of global (transnational) corporations. In small-scale national economies and their enterprises, the issue of globalization arises in a particularly harsh way and is accompanied by heated debates.

This introduction is intended to point out the fact that competitiveness research has described for the first time certain phenomena having become commonplaces by now. Examples of such phenomena are the following: each developed market economy can be described as an open economy and we have to speak about a truly global world economy. Competitiveness research has also presented suggestions of how to manage the evolving situation. There are still a lot of theoretical and empirical problems to be researched in these fields. One such field is the modification and the reinterpretation of

the borderlines and the scope of traditional disciplines of science. From among the above-mentioned problems the issues of competitiveness related to economics, and primarily those related to business and management studies within economics, are going to be investigated.³

2.1. Economics and business and management studies

Although these two scientific disciplines are related to each other, to my mind, one cause of the debates on competitiveness research is that economics and business studies approach the same phenomena in rather different ways. Therefore I will begin this chapter of theoretical introduction with the definition of the subjects of the two disciplines. In my opinion, defining the subjects of the disciplines also involves hypotheses that often fall into oblivion when *applying* the results of the two disciplines, and they also lead to misunderstandings. Defining the subject of economics, I primarily rely on Samuelson's and Nordhaus' work (Samuelson-Nordhaus, 1988), and defining the subject of business and management studies, next to Cox's, Elfring's and von Raaij' approaches (Cox, 1997; Elfring-von Raaij, 1995), I rely also on Chikán's work (Chikán, 1997b).

My starting point in defining the **subject of economics** is Samuelson's and Nordhaus' definition. One of my reasons for this is that according to *The Economist* (August, 1997, p. 60.), their economics textbook has been the best-selling publication since its first edition and there is no question about its influence on knowledge and approaches in economics. My other reason is that it can be verified by methods of the sociology of science that the majority of representatives of mainstream economics accepts their approach. Economics studies how people and the society at large end up choosing scarce resources to produce various goods and to distribute them among various members and groups in society for current or future consumption (Samuelson-Nordhaus, pp. 30-31). Economics is traditionally considered to have two branches: macro- and microeconomics. Macroeconomics deals with the economic problems of the whole economy, while microeconomics investigates the behaviors of individuals, of households, and of companies on the basis of various, well-defined assumptions. Both branches assume a national economic framework. There is a third branch of economics closely linked to these two: international economics. This one investigates how the behaviors of national economies and its main actors alter, when significant trade relations are established between them.

Important **assumptions** of economics are that resources are scarce and that they can be employed alternatively. The various models also agree that the most important economic task is to employ resources efficiently (to achieve the greatest possible output with the least possible input) in order to raise the level of consumption. Apart from this, however, in J. Stigler's words: "an economist should not tell the society what

³A comment belongs here. My research carried out in the Spring of 1999 at the Catholic University of Leuven (Belgium) and HEC (Jouy-en-Josas, France) was primarily theoretical and tried to disclose the interrelatedness and differences in theoretical literature of economic and business studies. In the next section I draw from some of the knowledge I obtained there.

to look for. His/her task is rather supporting society in achieving its objectives efficiently” (quoted in Piper, 1997, p. 188). During more than 120 years of the history of economics, the methodology and basic theories have been established and accepted, the application of which has made economics a respected science.

I point out *theories of firm* in economics. As Archibald points it out (Archibald, 1987), economics does not have a unified firm theory. Kapás adds two firm theories to Archibald’s classification (Kapás, 1999): the firm theory of the new institutional school that she calls contract-firm theory and the resource-based view. The new institutional school can be regarded as a school aiming to establish a connection between economics and business studies. Based on Coase (1937) and Williamson (1985) this school investigates e.g. the boundaries of firms and the functioning of internal institutions. This approach is especially promising for the study of globalization and the operations of transnational corporations. The resource-based view has been rooted primarily in the firm theory, particularly in Penrose’s work (Penrose, 1959), and the results of research on corporate strategies (e.g. Wernerfelt, 1984; Prahalad-Hamel, 1990). It is still an unanswered question whether we should consider the various firm theories to be theories at all, or should rather consider schools based on the same paradigm within firm theory. In my opinion there are schools based on various paradigms that constitute the firm theories, and all contributed to relate economics to business studies. In economics such a school is the new institutional school, and in business studies the results of the research on corporate strategies should be mentioned. M. E. Porter represents one corporate strategy approach. He developed his models on the basis of the theory of industrial organizations. In respect of firm theories it should be pointed out that there is a new tendency in international economics as well, demanding a theory of multinational corporations (see e.g.: Caves, 1982 and 1998; and Guisinger-Brewer, 1998).

It is more difficult to define the **subject of business and management studies**. In this field there is no basic textbook accepted internationally, unlike in economics. Furthermore, this field is more heterogeneous and more dependent on contexts and practices than economics, due to the peculiarity of business and management activity. We might claim that business and management studies deals with the utilization of scarce resources within different organizations in order to produce and provide for society various products and services. The prototype of organizations is the enterprise that has to provide products and services with profit and under defined market conditions (Chikán, 1997b).

Researchers of the different sub-disciplines of business studies (e.g. marketing, production management, logistics, and finance) aim at describing and systematizing the practices in their own fields, and at enriching the knowledge and skills (involving solutions and “recipes” as well) that help enterprises and their employees to be successful. Using this as a starting point, according to Cox, who intends to formulate meta-theory of business and management studies, business and management studies aim at nothing else but contributing to the sustainable success of individuals and businesses (Cox, 1997). Cox defines sustainable success as follows: “*sustainable success* is defined as the ability by individuals or companies to maximize their capacity to appropriate and accumulate material wealth for themselves in an environment of

absolute and relative scarcity” (p. 15). He identifies ignorance with two meanings as the main obstacle of achieving success:

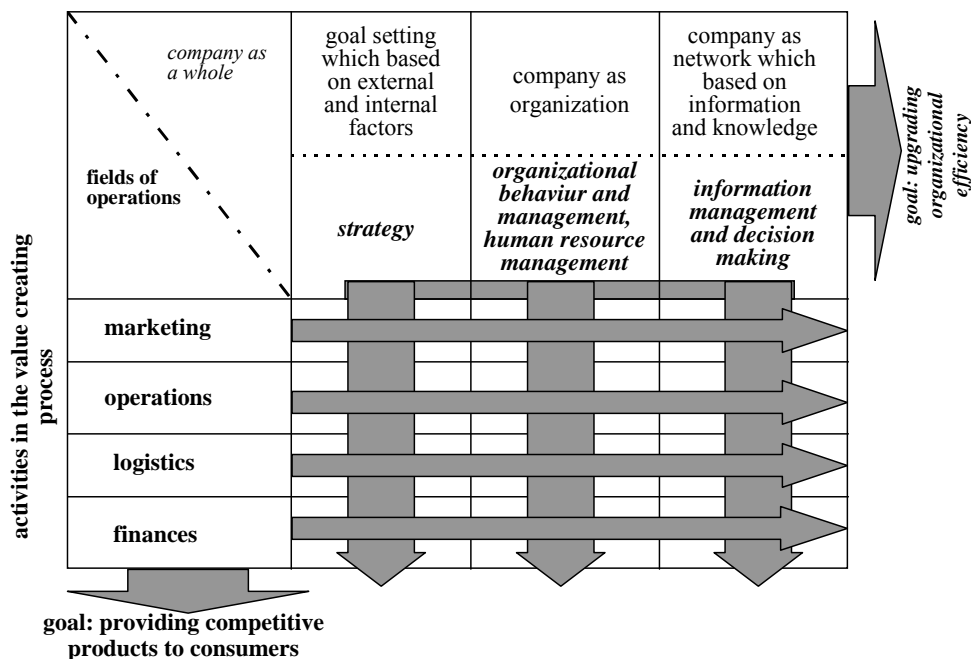
- People generally do not know what is the appropriate thing to achieve valued outcomes under different circumstances. (p. 17.)
- They do not have an appropriate way of thinking, which will allow them to see or to understand what actually confront them. (p. 17.)

These factors are problems in the internal decision-making of enterprises, and as such, they concern one of the elements of business operations, although an undoubtedly prevailing element of it. It is a considerable deficiency of Cox’ that he neglects the so-called functional sub-disciplines of business and management studies (e.g. marketing, production management, logistics, and finance).

It is more suitable to classify sub-disciplines of business and management studies by their subjects. That is to say, they belong to one group if one investigates the enterprise as a whole and to another one if one focuses merely on certain well defined areas in business operations.

Strategy, organizational behavior, management, human resources management, information management, decision theory and -methodology fall into the first of these two groups. The most important task of these sub-disciplines is to provide managers and their employees with knowledge and skills that increase the organizational efficiency of enterprises.

Figure 2.1 Fields of business and management studies and their interrelatedness



The focus of sub-disciplines investigating certain areas in business operations is set on certain value creating areas from the viewpoint of consumers. From the point of view of business operations the objective of these areas is to develop competences to market competitive products or services. I summarized this way of thinking in the figure

below. The figure illustrates the integrative approach to the sub-disciplines of business and management studies and points out the relationship between each of them and the enterprise as a whole.

Cox (1997) classifies business and management studies literature - which, according to the bibliography, involves primarily books about strategic management - by the authors' methodological thoroughness in trying to provide solutions and practical pieces of advice. He divides authors into two groups: *barefoot empiricists* and *systematic empiricists* (Cox, 1997, pp. 81-130). In Cox's classification the prevailing approach in business and management studies literature is an empirical one and not a theoretical one.

Barefoot empiricists strive to come up with new knowledge of general validity in terms of whole companies on the basis of a certain number of unique cases. Cox places into this group for instance the works on management of the non-discussed functional areas together with Hamel's and Prahalad's works. He may not be right when he puts into this group *all* the areas of functional management, since their type of model-formation and of verification quite close to those applied in economics. In Cox's opinion the greatest deficiency of the authors in this group that their generalizations and points of reference offered do not provide the targeted users with any suitable way of thinking. The reason for this is that the circumstances, under which the suggested solutions would be applicable, have not been clarified. Let me comment here that according to Clark's and Salaman's work, who attempt to classifying primarily the American so-called "management-guru" works (Clark-Salaman, 1998), most of the authors they regard management-gurus (e.g. Peter Drucker, Tom Peters, and Robert Waterman) fall into this group. The roots of their popularity in the US are to be found primarily in the culture of the American society.

The group of *systematic empiricists* includes schools striving to formulate a systematical and descriptive typology of the possible strategies and the realized practices that companies may actually adopt. Cox lists here, among others, the works of Igor Ansoff and M. E. Porter. He maintains that the problem with these works (e.g. Ansoff, 1965; M. E. Porter, 1980, 1985, and 1990) is their failing to provide companies with a suitable methodology, which might help them to identify in advance the most suitable strategy in certain circumstances.

Although Cox's approach described above is primarily based on the literature on strategy, his grouping seems to be applicable to the other sub-disciplines of business and management studies as well. One can observe that in business and management studies research the so-called empiricist tendency gains an increasing role and quantitative research is spreading to verify the loosely formulated models and frameworks.

Table 2.1 Contrasts of economics as monodiscipline and business and management sciences

	Economics as monodiscipline	Business and management sciences - interdisciplinary
Orientation	theoretical improvement of theory	applied solution of problems
Reasoning	largely deductive	largely inductive
Object	aspect	“whole”
Context	universal focused	contextual comprehensive
Approach	normative “could” confirmatory pure static	situational “should” exploratory, descriptive applied dynamic
Boundaries	restrictive: <i>ceteris paribus</i>	a-restrictive: “all-factors” included
Education	specialization	de-specialization
Orientation	scientific career	management career

Source Based on Elfring-van Raaij, 1995, p. 30

Table 2.1 summarizes the differences between economics and business studies. Elfring and von Raaij choose a very illustrative starting point for giving a sense of these differences. In separating them, they speak of mono-disciplines symbolized by the Olympus, and applied theories symbolized by the Agora. When a discipline is to solve practical problems, the discipline belongs to the sciences of the Agora. The authors list among the sciences of the Olympus mathematics, economics, psychology, and sociology. They list among the sciences of the Agora marketing, finance, organizational behavior, and strategic management, that is to say, practically the main fields of business studies. This illustrative classification is based on the practice and it points out that the more applied and therefore context-dependant a field of science is, the more numerous models, theories and suggestions compete with each other.

The main characteristic of economics and business and management studies described above is that they work within the framework of a national economy. Foreign trade relations are present in economics (e.g. international economics) and in business studies as well (e.g. international marketing), but neither one is able to treat them in an integrated way. As I mentioned it in the introduction, competitiveness research questioned the national economy-framework, and tried to investigate foreign trade relations and their effects at different levels of the economy. I should mention research projects on global industries here as well (e.g. Porter, 1986a) that can be regarded antecedents of research on competitiveness and global corporations.

2.2. Competitiveness Research and Competitiveness

After the second oil-crisis macroeconomic interest turned towards the competitiveness of national economies, and at the level of big firms it turned towards the formulation of strategy. In 1985 reports were prepared about the competitiveness of the English and the American economy. The “Can America compete?” study of the Brooking Institute published in 1984 can be a preliminary version of latter reports (Francis, 1989). Practically up to this date there had been no mention of the problem of competitiveness

at the national economic level in economics. In this chapter I am first going to review the findings of competitiveness research projects, and then I am going to evaluate them from the angles of economics and business studies.

2.2.1. *Competitiveness Research*

I reviewed three American competitiveness research projects in my Ph.D. thesis proposal (Scott-Lodge, 1985; Dertouzos et al., 1989; and Porter, 1990). One of my reasons for choosing them was that they were among the first works that generated further competitiveness research projects. My second reason was that when the *In Global Competition* research program was launched, we learnt a lot from these American projects. The detailed description of the three projects can also be found in Csernenszky's work (Csernenszky, 1997), one of the most complete reviews on competitiveness research projects in Hungarian.

I include a fourth project as well in the descriptive section on the basis of Zysman-Tyson's (1983) work, which anteceded the above-mentioned three projects but anticipated their approaches. This project investigated the position of six American industries in international competition: steel industry, color TV industry, semiconductor industry, the textile and apparel industry, footwear industry, and automobile industry; and it also summarized the lessons of the Italian small business development from the point of view of industrial policy. The analysis was based on case studies and the editors concluded in 1983 "the structural and the competitive adjustment problems of individual industrial sectors require policy measures tailored to adjust their needs. Implicit in this view of course, in the resumption that industrial policy requires an understanding of competitive market dynamics and policy options in particular sectors of the economy" (pp. 7-8.). This study at the beginning of the 1980s meant to draw conclusions primarily for the government, although firm strategies are included in its subtitle. Its focus was on industrial policy and it considered the structural problems of industry to be as important as the adjustment to international competition. There is no trace of the industrial policy approach in the research projects a couple of years later.

Each of the three projects I took as example was carried out in the 1980s at two well-known educational institutions of Boston, the Harvard Business School and the Massachusetts Institute of Technology (MIT). Two projects were linked to Harvard Business School. Findings of the first research were published in a volume edited by Bruce S. Scott and George C. Lodge (B. S. Scott-G. C. Lodge, 1985a) and those of the second in Porter's book (M. E. Porter, 1990). These two books are not only linked by Harvard Business School, but by their approaches as well. Scott and Lodge give more information about their concept, their interpretation of competitiveness, and their assumptions. Porter speaks less on his assumptions; however, he follows the line of a business approach in a much more determined fashion. The research was carried out at Massachusetts Institute of Technology is between the Scott and Lodge's and Porter's projects. It was started in 1986 and it focused on the competitiveness of the US industry. Michael L. Dertouzos et al edited the volume published in 1989 summarizing the findings of the research.

From the point of view of the United States the objective of competitiveness has been to preserve and upgrade the country's position in the world economy. Therefore, the starting point of competitiveness research has been the declining competitive advantage of the U.S., as compared to other developed countries. Relied on macroeconomic data and data on certain industries, the projects called attention to the decreasing share of the United States in export markets with its imports increasing. This all resulted in an increasing trade deficit, while the rate of GDP-increase was behind those of Japan and West Germany, among others. Furthermore, together with the import competition, competitors appeared on the American market with inward foreign direct investment. The object of the research was the practices of the most developed market economies, that is to say, market economies that had functioned for several decades or centuries, were compared with one another.

Each project based on macroeconomic data and each arrived at conclusions on the basis of international comparison. Conclusions of each were the necessity of going beyond macro-level analysis. Our three projects went beyond and they formulated the basic principle of *a national economy being competitive when its firms are competitive*. Therefore, the investigations should focus on and conclusions, and proposals deduced from them should serve the competitiveness of firms finally.

Each research project accepted that the results of macroeconomic analysis provide important insight into productivity. *Productivity can be considered to be the epicenter of competitiveness*, but these macro-level research findings cannot be utilized in formulating proposals that could be addressed to firms.

Each research project intended to contribute to the improvement of competitiveness, especially that of the United States. Competitiveness in general meant that the economy *had to adjust* to the changed conditions of the world economy and to international competition, and that the adjustment of the national economy had to take place at industry and business levels. Therefore, the research projects describe international experiences and discuss their lessons for the United States. The proposals are all addressed to enterprise managers and to the government.

Neither Scott and Lodge's, nor the MIT research intended to produce a model for improving competitiveness. Both research projects aimed at decision makers in the United States. In contrast to these, the objective of the international research project coordinated by Porter was to formulate a model suitable for explaining and forecasting competitiveness.

Concerning the methodology of the research projects, we can see that each was based on case studies. Researchers thought that case studies were suitable to exploring business and government factors that may support the international competitiveness of firms and industries. Further international comparisons of other areas (e.g. education and training, technology, the institutional backgrounds of R & D and their influences on firms) were made within, or next to the case studies. The objective of these was to point at the most respected practice, and providing some benchmark to formulating proposals. We may summarize the common characteristics of these projects in

Table 2.2: The Common Characteristics of Competitiveness Research Projects

Issues	Characteristics
Research question	Declining macroeconomic performance in international comparison
Unit of analysis	Company-industry-government policies
Aim of research	Proposals for upgrading the economic position of the U.S. in the world economy
Orientation	Applied business research
Addressees of research findings	Managers, government, professors

According to several authors dealing with international economics, the comparative advantage of the United States should be analyzed before proceeding to competitiveness. This criticism was formulated first of all because of the neglected quantitative methods, and on the other hand, because research reports did not devote too much space to reveal links to international economics. Krugman (Krugman, 1996a) has expressed this view in the most pronounced way.

Porter's project was the only one that offered a theoretical model applicable by developed countries. There have been few empirically experiences as far on the practical relevancies of this model. However, it is worth pointing out that Porter (Porter, 1998b) refined his diamond model. Based on his findings of the 1990s his new model stressed determinants of local competitive advantage to support the competitiveness of clusters. He lists the countries and regions where his cluster-based reports and case studies had been carried out (pp. 284-87).

Table 2. 3.: Studies and Reports Based on Clusters

Country or region	Number of studies or reports	Date of studies or reports
United States		
• Appalachia	1	1997
• Arizona	4	1990, 1996, 1997
• California	6	1992, 1993, 1995, 1993, 1997
• Connecticut	2	1991, 1996
• Massachusetts	2	1991, 1992
• Minnesota	3	1995, 1996
• New York City	2	1997
• Pennsylvania	1	1994
Brazil	1	1997
Central America	1	1997
Ireland	2	1992
Netherlands	2	1990, 1995
New Zealand	1	1991
Northern Ireland	1	1995
Portugal	1	1994
Total: 15 countries	30 studies or reports	between 1990-1997

Based on Porter (1998a) pp 284-287

Altogether 30 studies and reports were prepared in seven countries and on a region including several countries. It should be noted that two countries, Ireland and Portugal,

currently considered to be success economies of Europe, are listed in the above table just as New Zealand is doing, which is also considered to be successful. We may not state it unambiguously that these countries have achieved their admirable economic results due to the research mentioned above. However, analyses of economics and business studies usually point out that the conclusions of the research projects published under Porter's name, have had some role in the "economic" and "firm" miracles that emerged 4-6 years after the studies or reports had been completed.

Before turning to an analysis of the theoretical background of competitiveness research, I should briefly mention the so-called **competitiveness lists**. There is a single reason for this: they are very popular. To my knowledge, two works have been published in Hungarian about competitiveness lists. Pál Majoros prepared one of them in 1997 at my request, and Mária Findrik and Imre Szilárd published the other one in 2000. In what follows, I am going to rely on these two works.

Since 1980, when the World Competitiveness Report was first published, the term of competitiveness receives wide public attention at least twice a year. The reason for this is that the countries investigated (Hungary was the first country of the region to be included in the report in 1992) are ranked by several aspects. The order of rank is drawn up on a complicated system, but the summarizing one is clear and illustrative. Therefore, they are popular and cited in spite of the criticism directed against their concepts and methodology. This is one of the reasons why Majoros's, and Findrik and Szilárd's review of the aspects of the different lists of competitiveness. Factors that lists claim to have influenced Hungary's position in the competitiveness lists in certain ways are also instructive. Findrik and Szilárd devote most of their efforts to the analysis of main indicators. The following statements are on lists including 46 countries and published annually in the World Competitiveness Yearbook.

Hungary had a better position in the summarizing list in 1996 (39th) than in 1995 (40th). Since then we have been able to show further improvements: 1997 – 36th, 1998 – 28th, 1999 – 26th. It should be noted here that several less-developed countries received better evaluations than Central and Eastern European countries. At the same time, several developed member states of the OECD and of the EU (e.g. Portugal, Greece, Mexico) are at a level similar to that of the countries in Hungary's region.

The following statement could be made about the competitiveness of Hungary based on the 8 main indicators (economic macro-performance, foreign trade achievements, government policies, financial services, infrastructure, leadership-management, science, technology, and the human factor) in 1996: "our technological backlog (36th position) is a considerable factor determining our competitiveness. To improve it, however, the country needs capital (43rd position) and suitable management (38th position); that is to say, Hungary is in a considerably poor position determined by three important input factors. We have better positions in infrastructure and the human factor that may be regarded important input factors as well, however, we do not stand out here, either, and the competitiveness and supportive government policies are of low levels" (Majoros, p. 40). According to Findrik's and Szilárd's review, we have achieved the smallest change, namely improvement, in the area of management (1996 – 38th, 1999 – 30th position). The major ones we managed to improve are in the areas of

government policies (1996 – 40th, 1999 – 26th position) and financial services (1996 – 43rd, 1999 – 28th position).

The above has been an outline of the competitiveness list. From 1996 to 1999 the whole Hungarian economy advanced from the 40th to the 26th position, which is a sign of a considerable improvement of its competitiveness. The notion of competitiveness has become very popular; however, several issues concerning its measurement have not been clarified yet. Still, the above list comparing countries is also very popular. These lists are clear-cut, informative, and do indicate tendencies, but I think that they are only suitable for providing a basis for further research into various fields of competitiveness.

2.2.2. The Questions and Theories of Economics

Questions on the competitiveness of national economies are closely linked to international trade, therefore, at the level of economic policy such questions have been dealt with in the framework of trade policy. Economics is interested in the causes underlying (foreign) trade, because it “amplifies the consumption possibilities of countries. Trade allows countries to consume more of each type of goods than the limits of their national production possibility frontier allow when they have no foreign trade and have to self-supply” (Samuelson-Nordhaus, 1988, p. 1172). This principle of international economics has become the guiding principle of agreements regulating international trade, and of international trade policies applied after the World War II. The failure of national economic policies aiming at autarchy between the two World Wars also encouraged the application of this principle in practice (Cameron, 1988).

From the point of view of national economies, international economics is trying to tell why certain countries trade with each other, which factors influence their trade and how foreign trade influences their domestic economies. “The theories of international trade are often classified into three groups: the so-called pure theories, financial theories, and alternative theories” (Tóth, 1998, p. 31). Pure theories focus on the exchange of goods between countries, and they investigate the causes of foreign trade mainly from the production (or supply) side. The theory of comparative advantages belongs to this group. Financial theories discuss the currency problems of trade. They are interested in the effect of the international monetary system on international economic relations. Out of alternative theories I would only touch upon the Linder-theory and Vernon’s model of international product life cycle. Linder’s theory tries to explain international economic relations from the aspect of consumer preference. Vernon investigates how new products appear and diffuse in international trade. These two theories have brought macro-oriented theories nearer to the micro-sphere.

According to Krugman and Obstfeld (1997), the same approaches and hypotheses are to be applied when analyzing international economics as in the case of internal trade. They suppose that the following subjects are the most significant: the advantages achievable through international trade; the types of trading; protectionism; the balance of payments; exchange rate policy, trade policies; and finally, international capital markets (p. 3). According to international economics, the trade policies of developed countries should encourage exports and, in some industries, hold imports back. In the opinion of

international economists, competitiveness is attractive to economic policy makers and businessmen, but its conception has remained a bit hazy (pp. 275-276).

According to Török's review published in 1996, international economics does not discuss the concept of competitiveness. In his opinion, this concept cannot be deduced from any basic paradigms of economics, either. He thinks that schools on "international trade performance, on specialization based on market theories, question one of the basic hypotheses of classic and neoclassic economic theory; the principle of the perfect competition". Reviewing the applied methodology, he finds that competitiveness measured on the supply (production) and demand (market) side cannot be connected with each other satisfactorily, since competitiveness affects cost-advantages on the supply side and it affects market performance on the demand side.

At national economy level competitiveness is best expressed by prices. According to Francis, we should deal with non-price-competitiveness, as well (Francis, 1989).

- According to the price-competitiveness approach, everything affecting prices is a factor of competitiveness.
- The non-price-competitiveness approach based on the fact that in international competition differentiated products compete, thus the field of competition may be, for example, price, the characteristics of products or after-sales services. (In this case innovation and developing new products are especially important. In the lack of these, the competitiveness approach seems to be much more proper, argues Francis, referring to the English example of the 1950s in a paper he published in 1992.)

In his paper published in 1992, Francis calls attention to the fact that the focus of investigations of economics, economic history, and the political sciences, is on national economic performance. He connects competitiveness with the renewal of industries, which is also rooted in research into management, apart from the above-mentioned disciplines. He argues that we have to separate these two groups for at least two reasons. On the one hand, altering interests controls the two groups of research and they also have various scientific bases, on the other hand, proper theoretical basis and conceptual apparatus to link them is missing (pp. 62-63).

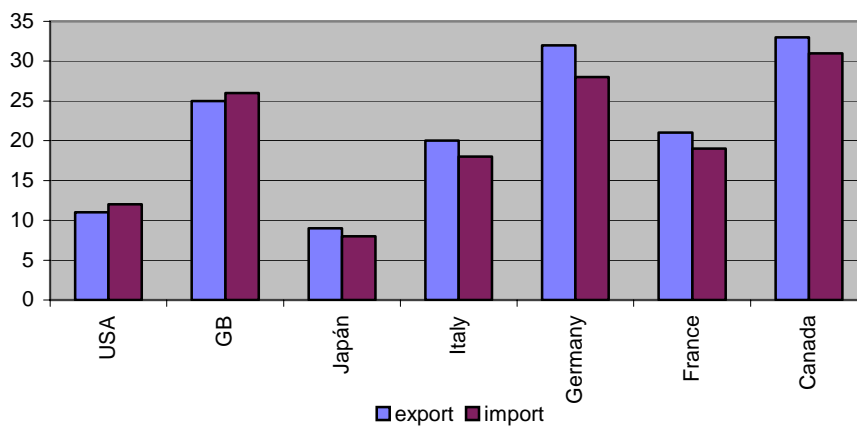
Francis' approach (Francis, 1989) is close to Török's approach (Török, 1996). In Török's opinion competitiveness manifested in prices from the supply (production) side and non-price competitiveness is rooted in the demand side (the market). Francis points out that problems are about the measurability, since it changes that are measured and not levels and non-price factors are neglected. Furthermore, the increase of productivity is much easier to measure than competitiveness itself, which is difficult to define (Francis, 1992, pp. 66-67).

In the meantime it seems that the study of open economy has gained ground in macroeconomics (see e.g. Mankiw, 1999, Chapter 7). The novelty of this has been the introduction of the following issues of international economics into the macro-economics: trade relations, that is, the effect of movement of capital and goods; savings and investments in open economies; and the effect of exchange rates on the national economy. This is important to point out here, because traditionally only trade and exchange rates had

been subjects of macroeconomics (e.g. Samuelson-Nordhaus, 1988; Hall-Taylor, 1997). Macroeconomics fundamentally assumed closed economies.

I must make a brief comment on open economy. Investigating the role of the export and the import in the United States their proportion to the GDP are illustrated by data for the period from 1950 to 1995. Their values from 4-5% of the GDP in 1950 had increased to 10-12% by 1995 (Mankiw, 1999). Export had lower proportion to the GDP than import in the period from 1980 to 1990. On open economies, Mankiw displays the data for 1994 shown in Figure 2.2. Let me comment here that the data of the figure below were 25.8% in respect of export and 35.2% in respect of import in their proportion to the GDP in the case of Hungary. Both of these values had increased significantly by 1997. Export had reached 41.8% and import reached 46.4% to the GDP.

Figure 2.2. Shares of Import and Export in Some Developed Countries` GDP in 1994



Source: Mankiw, 1999, p. 215

Discussing common market theories, Palánkai points out that traditional theories of international economics had focused on trade, while currently, due to globalization, more attention is paid to the inter-country flows of factors of production (Palánkai, 1999, pp. 64-82). “When evaluating the role of factors of production (e.g. capital, labor, technology, enterprises) it should be clear that these goods are special. Their prices are impossible to deduce simply from their marginal utility. The prices of factors of production are performance-based (determined on the basis of their marginal productivity). Since their quality varies by country, their prices necessarily alter, regardless of their scarcity. /.../ Classic authors’ supposition, who had focused on factors of production, while neglecting quality-differences between them, has become insupportable,” summarizes Palánkai the relation between factors of production and the comparative advantages (pp. 64 and 67). Then he points out that “in respect of factors of production, the opportunities to develop comparative advantages depend on the quality of factors of production and a lot of situations may occur when a given country has advantages or disadvantages in all factors of production” (p. 68). I have cited this because Porter’s (1990) approach on comparative advantages assumed that factors of production are renewable factors, and not natural endowments. Investigating firms, Porter intended to answer Palánkai’s question in another dimension.

I conclude the following from the reviews of the economic theoretical background of competitiveness: Competitiveness is related to the performance of national economies (e.g. productivity, GDP) and their foreign trade. It is investigated primarily when international market positions of a country change. It seems that this problem arose a bit later in the “mainstream” literature than it did in the case of smaller countries that went through this process some time earlier than others. One of the most important roots of and inspirations for competitiveness research is macroeconomics, particularly international economics. It is considered as axiom in international economic theories that international trade is useful for national economies. Some fundamental questions of international economics are: what are the causes of international trade; which factors explain that various countries establish trade relations with each other; how do these relations affect the national economies of the participating countries. Behind descriptive theories we can discover the research into the effects of the supply side, of the demand side, and of financial systems. Currently the issue of the flow of factors of production is being elaborated as a new school. The issue of the international flows of factors of production moves us closer to competitiveness research.

2.2.3 The Business and Management Studies Approach

The core of the business and management studies approach is the fact that it is first of all enterprises that involved in international competition, and if they are unsuccessful in it, their own countries will also become unsuccessful in the world economy. It is enterprises, particularly big corporations that trade internationally and make decisions on the flow of factors of production. As a result, the competitiveness research projects described above mention the competitiveness issue as a problem of enterprises. They try to identify the factors that governments and enterprises have to focus on in order to support national enterprises to compete with foreign ones.

I mention again that behind the competitiveness issues and competitiveness research there is the process of the economy of the United States having become an open economy. At the end of 1980s American authors, criticizing the competitiveness of the United States in their works, consider the trade balance deficit and the diminishing internal and external market shares to be the manifestations of decline of American competitiveness in the world economy. The number of the subsidiaries of foreign (Japanese and West-European) corporations significantly increased during the 1980s. These phenomena are new for the U.S. but they are not for European countries and for Hungary. This is important, because since the end of World War II, the universities and researchers of the United States have always determined the main schools of economics and business and management studies. It is natural that the issues they raise have a considerable effect on the international scientific publications and on education at higher level. I also have to point out that, due to the empirical sensitivity of this discipline, the investigated economy has a fundamental influence on which questions the research projects are going to raise, on their research methods, on their theoretical background, and on their models as well. This influences the Hungarian research activity, as well, which I am going to introduce in more detail in Chapter 4.

Competitiveness research projects in this field were inspired by the performance of a national economy. Their focus is on enterprises. This issue introduced the international aspects into the competition from the point of view of enterprises. Researchers try to find out what the senior management of enterprises can do in order to increase the international competitiveness of their enterprises against their international competitors. According to Francis' summary the competitiveness of enterprises has three components:

- Efficient operation in the long run,
- The ability to pay proper salaries to employees,
- Providing expected returns to owners.

Based on that the competitiveness “for a nation must be tied to its ability to generate the resources required to meet the national needs“ (Francis, 1989, p. 16). In other words, nations should be able to support both the internal and external allocation of factors of production, and government policies have to support the continuous renewal of this ability.

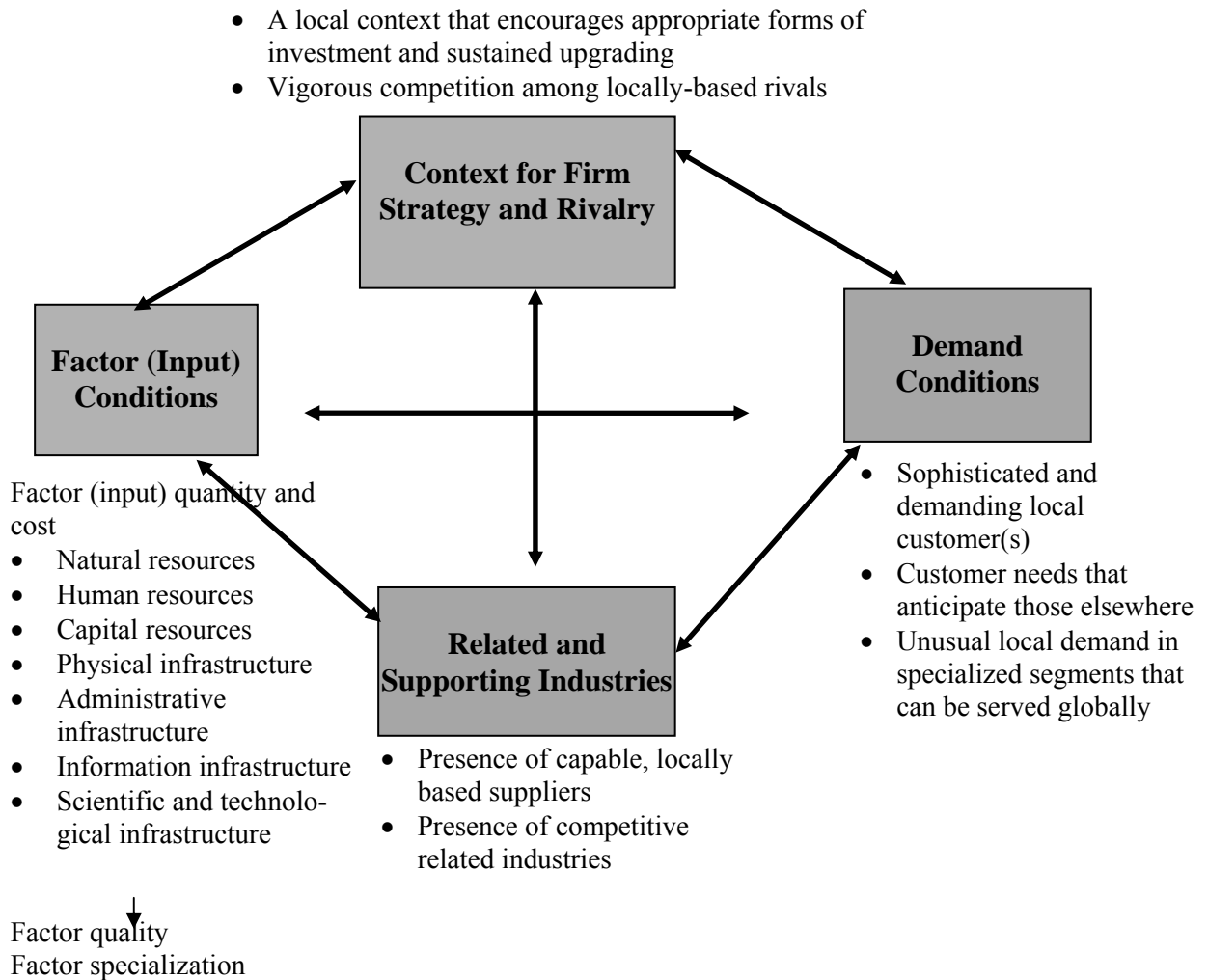
Competitiveness research rooted in business and management studies is mainly conducted from the point of view of enterprises. On this basis authors try to draw conclusions and to provide proposals for economic policy on how to support the competitiveness of the national economy. Note that this approach is one of the main points for criticisms of international economics. The issue is interesting where there are global corporations. Globalization is accompanied by a new phenomenon, the flow of capital investments inside multinational corporations, which are cross-country organizations, and which is hard to investigate by international economics (see e.g. Krugman, 1996a; and Krugman-Obstfeld, 1997). In the Introduction of the cited book of Palánkai uses the expression of “megaeconomics”, since in his opinion, “the changes of the ‘globalized’ world economy can not be analyzed by the categories of traditional international economics. Several categories have to be revised, and in certain cases some completely new approaches are necessary” (Palánkai, 1999, p. 9).

Competitiveness research accepts the principle of international economics that says that trade is beneficial for countries. However, this principle is valid to the world economy as a whole and in case of individual national economies the effects of trade have to be analyzed. Setting out from this principle of international economics, business and management studies conclude that foreign trade and international economic relations are results of the activity of enterprises. Therefore factors that promote or impede the international operations of enterprises should be examined. Investigating the international operations is a novelty. Next to trade, foreign direct investment became subjects of investigations. Foreign direct investment is also significant for nations, both as investors and as host country (Daems (1998) and Sleuwagen (1988) pointed this out). Porter has given the most comprehensive description of this conception and he has introduced the term of “competitive advantage” into business and management studies and economics as well (Porter, 1990).

Porter (1990) concludes that since the existing theories are not suitable for explaining and analyzing the factors that make companies internationally competitive, a new theory is required. The new theory must meet the following requirements:

- “It must explain why a nation’s firm gain competitive advantage in all its forms not only limited types of factor based advantage contemplated in the theory of comparative advantage”
- “A new theory must start from the premise that competition is dynamic and evolving”
- “A new theory must make improvement and innovation in methods and technology a central element”
- “Finally, since firms play a central role in the process of creating competitive advantage, the behavior of firms must become integral to a theory of national advantage.” (pp. 20-21.)

The novelty of Porter’s (1990) approach was that his focus was on enterprises as well. His research intended to identify the national factors that contributed to the emergence of internationally successful enterprises that became prevailing in their industries internationally. Porter formulates his so-called diamond model as result of his research in ten countries. His central issue is that the factors of the international competitive advantages of enterprises are not natural endowments, as in the case of national economies. That is to say, he emphasizes just what Palánkai missed from traditional theories (Palánkai, 1999): they can be created and renewed.

Figure 2.3. Sources of Locational Competitive Advantage

Source: Porter, M. E., 1998a, p. 211

The model claims that basically four determinants can influence which industries in a national economy are going to be internationally successful. The four determinants are the following: factor conditions, demand conditions; the related and supporting industries; firm strategy, firm structure, and rivalry. Government measures can affect the development all of the four determinants. Chance refers to event that the participants of economies cannot influence, and that appear coincidentally (see Figure 2.3). The figure below shows an improved version of the 1990 model. My reason for using this is that this version of the model stresses locational determinants of competitive advantage.

2.3 An interpretation of competitiveness

I have not defined the concept of “competitiveness” so far. Taking into account all the above, on the basis of Scott and Lodge I accept the definition of competitiveness formulated by Attila Chikán (1995): National competitiveness is the ability of a

national economy to create, produce, distribute and/or service products meeting with the requirements of international trade in a way that the return on its own factor endowments increases in the meantime (Chikán, 1995).

This is a definition of competitiveness focusing on the maintenance and the increasing of economic efficiency in an open economy by taking into account the quality of the utilization of renewable resources available in the national economy. Its central factor is the adjustment and the ability to adjust. The openness of the economy is essential because the point of reference of their actors is provided by exports, imports, and foreign direct investment. Competitiveness is not an end but a mean to increase the living standards of the inhabitants of the given country. From the point of view of economic policy this mean is served by the maintenance of economic growth (GDP) and by employment at the highest possible level. It is necessary to specialize in producing products that increase the return on factors of endowments. This principle does not contradict the traditional theories of international economics. However, competitiveness research projects have called the attention to the necessity of interpreting factor endowments more broadly: renewable resources, and knowledge are of great importance in gaining competitive advantage.

In accordance with the definition of competitiveness at national level, we may consider enterprises competitive if they are able to contribute to the achievement of national competitiveness. Continuing Attila Chikán's definition (Chikán, 1995), this means that competitive enterprises

- are able to transform available resources into a profit flow complying with the social values and
- are able to perceive external and internal environmental changes that influence their long run operations and to adjust to them in order to maintain their profitability to support their long term operations.

In this competitiveness definition social values means laws and legal regulations, and the unwritten social values and norms of a national economy, and they have an outstanding significance. In this respect one of the most frequent misunderstandings about competitiveness and one of the roots of the debates is the fact that competition in economics is interpreted as perfect market competition. I refer to the 1995 report of the Lisbon Group. There is still an unsolved issue both theoretically and in practice, that in global, regional and nation competition which economic and political actors influence or regulate, and what scope for action is left in it for a national economy? A further important assumption and debated issue is whether we should consider globalization a zero-sum game. These questions arise especially sharply in the cases of small national economies (see e.g.: The Group of Lisbon, 1995; Korten, 1996; Martin-Schuman, 1998; and Schmidt, 1999).

Another factor of the above definition is profit flow, which is a fundamental condition in adjustment and the basis of the returns expected by owners.

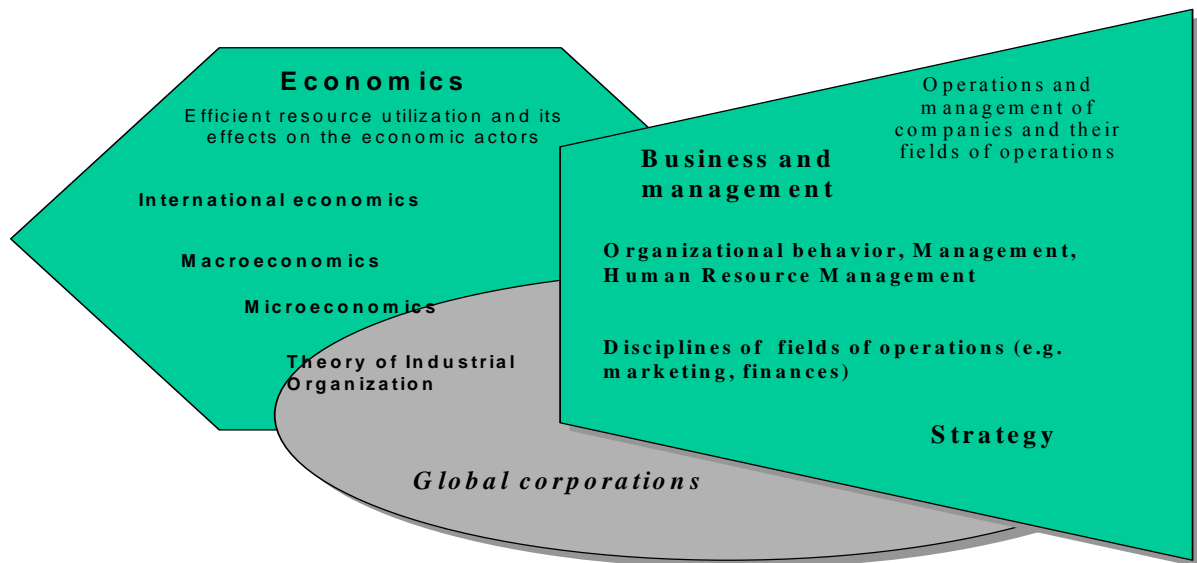
The discussed concept of competitiveness starts from national competitiveness and ends up at competitiveness. There is still no theory model to connect national and

micro-level (industrial or enterprise) competitiveness. In Chapter 5 I am going to return to this issues and I propose a multilevel approach to competitiveness.

It seems that globalization has thoroughly blurred the borders of disciplines. This is summarized in the figure below. All of knowledge of business and management studies knowledge is necessary for managing global (I use this word as a synonym of transnational) corporations, just as for managing corporations producing exclusively for domestic markets. However, operating internationally, in a cross-border way, is a new dimension of enterprise operations. I am going to enter into details about this Chapter 6. 1.

The traditional field of economics is too narrow for investigation the flow of factors of production. These are renewable goods valued by their qualities, and their flow is the consequence of the operations of global corporations. Role of regional integration, the basic type of which is the European Union, is a further challenge. Economic policy of the member states of the integration should be harmonized, which affects the traditional relations of member states and global corporations alike. I am going to discuss the European Union in more detail in Chapter 3.

Figure 2.4: Economics, Business and Management Studies, and Global Corporations



Discussing the approaches of the disciplines and summarizing my statements on concerning competitiveness in the theoretical review in Chapter 2, I relied on János Kornai's conception of the system paradigm (Kornai, 1999). In what follows, I am going to summarize the characteristics of the system paradigm on the basis of the theories and concepts I have discussed, and to review the issues of competitiveness research in order to decide whether they can be called a system paradigm.

Table 2.4: Competitiveness Research and the System Paradigm

<i>Issues of the System Paradigm</i>		Competitiveness research
<i>Focus</i>	Relations among the choice system and its parts	yes
<i>Subject</i>	Persisting institutions of great transformations which set economic, political and cultural events and processes	yes
<i>Scientific background</i>	Multi-disciplinary	yes
<i>Time span</i>	Longitudinal relationship among persisting institutions and historical processes	yes
<i>Preferences</i>	Outcomes of the system	?
<i>Research method</i>	Comparison	yes
<i>Main characteristics</i>	Discovering and revealing system specific antinomies	?

The answer to 5 out of 7 issues is “yes” in the above table. Competitiveness research has always focused on enterprises (as the part) and the performance of a national economy (as the whole). The subject of the research has been on the enterprise and government efforts to increase the performance of the national economy in an open economy and in the global world economy. Competitiveness research has to rely on several disciplines that have been various areas of economics, and fields of business and management studies. The time span of competitiveness research has always been several years and its most important method of investigation has been comparison. Two issues are marked with a question mark in the above table, because I do not deal with them in my thesis. One is the issue of preferences and the other is the main characteristic, which according to Kornai includes the recognition and the discovery of system-specific drawbacks. Preferences may be answered by yes, when competitiveness research uses the basic principles of traditional economics and of capitalism. The main characteristic can also be answered by yes, since it has called attention to the drawbacks of the existing theoretical systems and to globalization deserving further research.

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3. The EU and competitiveness

This chapter will review the EU objectives and policies supporting competitiveness and identify their position in the policy-making process. Also, I will list the proposals put forward in the 1990's on EU competition. In the review I will rely on analyses and proposals by the European Commission as well as on Hungarian publications by Palánkai (1999), Hiritis (1995), Blahó (ed.) (2000), Inotai-Tamás (1996), Halm-Körösi (ed.) (1996) and Hargitainé et. al. (1995). The chapter will focus on the key aspects of industrial competition. The terms *EC* and *EU* will be used as synonyms.

In terms of competitiveness, the points of reference of the EU are the US, Japan and the Far East. So the aim of the EU is to maintain its competitive position and sustain its economic performance towards those regions, particularly the other two major members of the Triad. Thus the major question for the EU is which EU principles, policies and regulations support the maintenance of its position in the global economy. In the traditional Triad approach involving the US, Japan and the EC, the EU represents an autonomous player in world economy (e.g. in OECD and WTO). As an organization composed of significant national economies, however, the EU plays a double role: on the one hand, it acts as an economic integration, on the other, as a representative of the interests of its dominant national economies. In this respect, the EU is a unique player in world economy composed of national economies and represents a new tier, which did not exist before. The principal national economies of the EU including the UK, France and Germany continue to play a key role in world economy and as part of the EU; they are influential actors in economic integration as well. This is one of the features of globalization, which could be subject to further research. The following review will focus on the internal, institutional operation of the EU, where the EU will be regarded as a consistent and autonomous member of the Triad, in terms of competitiveness. For this reason, the following review will primarily present and discuss the institutions of the EU.

For the purposes of the present thesis, another aspect of EU competitiveness is the framework that the economy of Hungary as an applicant country must fit. The reason why this paper will study the issue is because “the market challenges that the applicant countries will have to meet will be practically competitiveness requirements. There are disputes over the question as details of the requirements are not clear and some rightfully argue that such requirements are exaggerated.”, Palánkai says (1999, p.366) in connection with the Copenhagen accession criteria to be met by applicant countries from Central and Eastern Europe.⁴

3.1. European Union objectives and competitiveness

Under the Treaty of Rome the Member States established the European Community because they were “committed to paving the way for an ever closer union among the

⁴ These two issues were not part of the research program entitled “*In Global Competition*” that served as a basis for the present thesis. The reason for this is that it was not until the government of Hungary adopted Resolution No. 2004/1995(I.20.) in 1995 that research projects and publications on integration gained momentum in Hungary, as reflected in the bibliography.

peoples of Europe and securing the economic and social growth by the removal of the barriers dividing Europe through joint action. They confirm that the primary objective of their efforts is to continuously improve the living and working conditions of their people.” (Hiritis, p.62.).

As regards competition in the EU, Article 2 of the Treaty of Rome on the European Economic Community signed in 1957 states that the objective of the EC is to “promote a harmonious and balanced development of economic activities, sustainable growth, a higher level of stability, the raising of the standard of living and a higher degree of cohesion among Member States” (Hiritis, pp.60-61). These objectives are to be achieved by setting and meeting targets for the various areas of activities and implementing a single market. The Single European Act enforced on 1 July 1987 incorporates into the Treaty of Rome the major achievements made to that date and includes a decision to establish a single market by Dec 31, 1992. The White Paper that provides a basis for implementation states that “in order to create a Single European Market, the physical, technical and fiscal obstacles must be removed” (Palánkai, 1999., p.85.). This includes:

- Removal of physical obstacles to the free movement of goods, persons, services and capital. This target was achieved in several steps, including the Schengen Agreement concluded in 1985.
- The adoption of rules on fair competition
- Removal of technical obstacles, the approximation of laws to the extent required for the completion of the common market. This includes the mandatory mutual recognition of national standards and specifications, the mandatory European harmonization and standardization of the rules providing for consistent standards, and the mandatory Community notification procedure before the adoption of a new standard or specification. In practical terms, this includes production and product standards, regulations and directives.
- Establishment of a taxation system approximate to indirect taxation, which serves the purposes of the market. This includes the harmonization of VAT and business taxation.

The above objectives are to be met through two different policy-making processes. At an all-EU level, on the one hand, and through a harmonized policy-making in the respective Member States, on the other. Common policy-making is particularly important in the following areas:

- Agriculture, transport and trade. In terms of trade, this includes the removal of quantitative restrictions and customs duties to ensure the free movement of goods and services within the Community, and the creation of a common trade policy by specifying common customs duties for imports from third countries.
- The removal of barriers to the free movement of factors of production within the Community. As a result, the goods, services and factors of production market will grow which will improve the division of labor in resource allocation and exchange. If possible, the Community “should meet this objective under the conditions of free market and free trade. /.../ More specifically, in view of the provisions of the EC Treaties competition is a mere means to achieve a well-defined end.” (Hiritis, p.62)

The European Council was established following the Paris Summit in 1974 “in order to facilitate the Heads of State and Government to discuss Community issues on a regular basis, in a sincere and less formal atmosphere, which is indispensable for the development of European integration.” (Palánkai, 1999, p.193.). In theory, the Council is the principal decision-making body of the European Union, but actually the entire Union operates via summits and the most important decisions are taken in summits, Palánkai (1999, p.195.) points out in summary of the role of the Council nowadays. Under the Treaty of Rome, the European Union Council and the European Commission were established in 1965 (Merger Treaty 1965). The European Union Council is the primary but not exclusive body of legislation. It is where high-level meetings of the Member States take place and it is responsible to determine the budget. The Commission is the supranational body of the European Union and responsible to embody Community interests and policies. (Palánkai, 1999, p.209.) The drafters of the Treaty of Rome imagined the “Commission as an international ‘group of planners’ responsible to plan ways to meet the objectives identified in the Treaty of Rome.” (Halm-Kőrösi, (ed.), 1996, p.40.) Up to its reform in 1999, the Commission performed its duties through Directorates-General (DG). It was DG III, the Directorate-General for Industrial Affairs that studied and analyzed competition and drafted recommendations. As a first step of the reforms in 1999, the Directorates-General, referred to by Roman numerals before, were given comprehensible names and partly restructured. The Commission plays a key role in legislation. Hiritis (1995) and Palánkai (1999) divide its powers into the following groups:

Initiate Community measures

The Commission has the power to initiate measures in all the areas of common policy-making. This includes the initiation of strategies and the planning of detailed measures to adopt them. The Commission adopts implementation rules for Treaty provisions and European Union Council regulations to carry out the various policies. This power of the Commission is so strong that, in practical terms, the Council is not authorized to formulate legislation on issues on which the Commission submitted no proposal.

Executive body of the Community, guardian of the Treaties

The Commission is guarding the Community and ensures that Treaty provisions and Community decisions are enforced by the Member States. As a consequence, it ensures that Treaty provisions are applied to specific cases involving governments, companies and persons. It has the power to apply the “exemption clause”, that is to grant exemption from the provisions of the Treaties for a limited period of time in exceptional cases. If necessary, the Commission may turn to the Court of Justice to enforce Community decisions. In order to enforce Community decisions, the Commission has certain administrative and limited decision-making powers to manage Community funds including the European Regional Development Fund, the Cohesion Fund and PHARE, which is the main financial instrument for Central and Eastern European Countries.

Setting norms

The Commission can set norms primarily for the implementation of the regulations passed by the European Union Council, and also has legislative powers in its own right. It issued a great number of regulations, directives or decisions especially in the first stage of European integration and during the creation of the single market. Recently, its executive and control functions have become dominant.

Role in budgeting

Next to planning the budget, the Commission has the authority to keep control of the revenue side of the budget. In terms of expenditure, it is less clear what role the Commission plays as different principles apply to the management of the different EU funds.

Representative capacity

In its role, the Commission represents the European Union in international organizations (e.g. WTO, OECD) and it also acts on behalf of the Union in negotiations for example on international trade.

The above roles suggest that holding powers of initiation, norm setting and execution, the Commission plays a major part in EU competitiveness. Thus the reports, directives and regulations issued by the Commission have a major influence on the competitiveness of the EU, including that of the individual industries in the single market.

3.2. Policies and programs supporting competitiveness

In this section I will focus on four of the EU policies that, in my view, play a major role in competitiveness: the single market, trade policy, industrial policy and regional policy.

3.2.1. The Single Market

As for a single market, the Treaty of Rome states “the objectives will be met by creating a single market and continuously approximating the economic policies of the Member States”. The market forces however, failed to create a single market. /.../ The internal market was completed as a direct act, following the adoption of the Single European Act in 1992, 35 years after the Treaty of Rome.” (Hiritis, 1995, p.70) There are two requirements for a single market to operate:

- The removal of the barriers to the trade of goods, services and factors of production and
- Common rules to regulate competition.

Below 9 will study the first requirement in more detail and address the potential benefits of the single market.

Eliminating customs duties and non-tariff barriers can achieve the free movement of goods among the Member States. The abolition of customs duties and quantitative restrictions, as well as the adoption of common tariffs was a major step in this respect. However, as a result of different taxation procedures in the Member States, several non-tariff barriers such as product, technical, security, health care, environmental and consumer protection standards remained and revived. For this reason, Hiritis (1995, pp.70-71) maintains that the creation of a single market requires a firm legal background and efficient law enforcement which facilitates

- The elimination of technical obstacles to a single market,
- The approximation of the different taxation systems and tax rates, and
- Mutual recognition of internal standards that only has to comply with basic health care and security harmonization requirements.

Similarly to single market objectives, these considerations are not only important in terms of goods and services but also in terms of capital and workforce.

Analyzing the benefits of the single market, Hiritis (1995) identified two groups of cost-increasing obstacles to an efficient single market: customs duties and non-tariff barriers and barriers to entry the market. In line with the reasoning of microeconomics, a further reduction or elimination of those barriers would probably cut back costs. A reduction in costs would stem from the presupposition that if competition grows the allocation of resources become more efficient, which could set the basis for a more efficient use of economies of scale. As a result, production and exchange would specialize according to comparative advantage and the access to innovations and new procedures would become easier. A cutback on costs could probably result in a restructured production and trade of goods within the EU, improved efficiency and increased production. As a consequence of improved competitiveness, the EU could show a better performance in international terms.

As it is rather complicated to quantify and forecast the total benefits that the above factors would provide in terms of finances and time, one can only give a rough estimate. The EU prepared impact studies on the common market from three different aspects (Hiritis, 1995, pp.79-86, Palánkai 1999, pp.923-102). In retrospect, I agree with these studies that very rightfully presuppose that although the introduction of a single market precedes the introduction of a common currency, it can only be completed under the stable circumstances of the European Monetary System.

- Based on the theory of partial equilibrium, the impact studies looked into the static impacts that the elimination of price differences had on welfare, following the abolition of the above tariffs and non-tariff barriers. The studies addressed all the observed obstacles to market operation and all economic sectors.
- They provided a model of the effects that cost-increasing trade barriers made on the economic output of the Member States at large and on integration. The study reviewed the increased efficiency of technology and the quasi-dynamic impacts of X-efficiency, that is the elimination of insufficient organizational and technological structures that are incapable of optimization and give away inefficiency. The research also addressed the increased assortments of goods and services that came as a result of the elimination of oligopolistic profit and better market access.

They also addressed the impact of total active and passive macroeconomic policies resulting from the complete integration of the EU market on the EU's GDP.

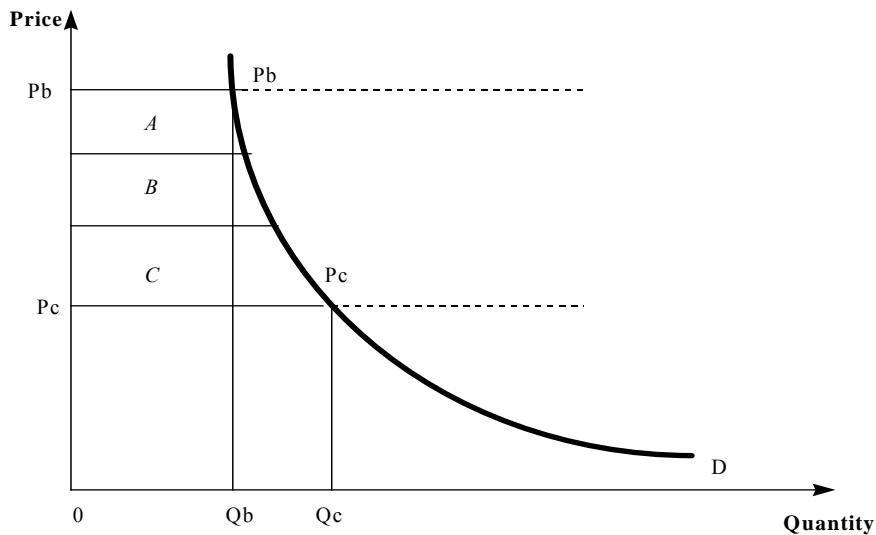
To the best of my knowledge, no similar impact study on Hungary's accession was carried out in Hungary. For that reason, I will quote Hiritis to review the model that analyses the impacts of the single market on the Member States. The study started out from the following presumptions:

- Domestic supply is as competitive as that of the other Member States, this way there are no Member State has a comparative advantage.

- The direct costs of competitive import immediately drop after market opening and foreign producers cut their prices.

Fig. 3.1 shows the process and results of adjustment where D stands for the demand of Z country. P_b represents price before the elimination of the obstacles, and Q_b stands for balance quantity of goods. In order to stay competitive, domestic producers cut profit and wages (area A), and improve organizational efficiency i.e. X-efficiency (reduce administrative costs, dismiss redundant workforce and stocks etc., area B). As prices drop below P_b , demand rises above the original Q_b . This increase in demand encourages domestic and foreign producers to make new investments. New investments and mergers result in the restructuring of the industry, which will encourage exploiting the benefits of economies of scale and further cut costs and prices in the long run (area C). Finally, price drops to P_c , and total demand rises to Q_c .

Figure 3.1 The impacts of the elimination of trade barriers in Member State Z of the Community



Source: Hiritis, 1995., p.82.

The above model suggests that the single market intensifies competition that improves the efficiency of the Member States in three fields:

- Adjustment to more efficient players in the market. (In practical terms, an intensified import competition forces the Member States to adjust, see area A).
- Improved organizational efficiency of domestic companies (see area A).
- The optimization of factors of production leads to a better exploitation of the benefits of the economies of scale. (see area C).

To sum up, the single market serves two purposes in terms of EU competitiveness. First, a larger single market improves the external efficiency of EU businesses by encouraging exploiting the economies of scale and comparative advantages. Second, the single market makes the EU an attractive place for foreign direct investment (FDI) that can bring considerable benefits for the EU through technology and knowledge transfer capital investments and new jobs.

As a matter of fact, it took rather long for the single market to be completed. The process had three stages. The first stage covers the period between 1958, the signature of the Treaty of Rome and 1968. During those years the customs union was completed and quantitative restrictions trade among the Member States were eliminated. The second stage covers the period 1968–1992 when the single market was elaborated and completed. The third stage started in 1993 and includes measures not accomplished, the improvement of the single market and the actual dovetailing of the national markets.

In 1988 the government of Hungary passed its first resolution (No. 2023/1988/HT8/MT) on the need to adjust to the internal market of the Community. This resolution primarily provided for orientation and informing those interested as well as a step-by-step adjustment in the required fields. Thereafter, Resolution No. 2004/1995(I.20.) of the Hungarian Government represented the most important step in the process. It provided for the adoption of the law related to the EC single market and called for the development of a preparatory program. The model outlined above would presumably have the same impacts on Hungary's economy as well, in the long run. It could be rather useful to quantify what we mean by "the long run" in terms of years, however, that would require a more specific analysis addressing the individual fields of economy: Which areas would enjoy the benefits and suffer from the drawbacks? How would they affect the domestic and non-EU trade relations of the Hungarian businesses?

3.2.3. Trade policy

The EU is based on the principle of free trade as it is built upon a customs union among the Member States. As part of the customs union no customs duties are imposed on the trade between the Member States, whereas for non-EU countries common customs duties are levied. Thus trade policy addresses the issues of trade between the EU Member States as well as the common policies and measures to be applied to non-EU countries. The content of trade policy is not defined. "Common trade policy is developed according to common fundamental principles for the following areas: modification of tariffs, conclusion of agreements on tariffs and trade, harmonization of measures on liberalization, export policy, and trade protection measures including dumping and subsidies." (Izickné, 1995, p.115). Trade policy covers the following areas: customs policy, exemption from duty for Member States, common tariffs for non-EU countries, the prohibition of imposing quantitative import and export barriers and the restriction of trade monopolies which adversely affect the internal market. The scope of trade policy, however, does not include the regulation of the following issues: the internal market, particularly non-tariff barriers, foreign currency policy and trade in agricultural products. Questions on the application of trade policy come to the forefront in particular when new Members are admitted and trade relations expand.

Economic arguments in favor of free trade support the implementation of a liberal trade policy. Advanced industrialized countries, however, argue for an interventionist trade policy. Their arguments are as follows: sustain and encourage efficient industries, support and protect strategic industries like high technology, adapt to the special features of handicapped industries such as agriculture and protect the industries that are of high importance for national security and defense.

The most typical arguments for protectionism (the application of customs duties and non-tariff barriers) include:

- a lasting deficit of balance of trade causes macroeconomic problems,
- The growth unemployment that requires a high budget and social costs
- Changes in exchange rates result in the instability of exchange rates
- Unfair trading practice in other countries
- Application a strategic trade policy to protect the domestic industries from the inefficient international markets, the impacts of excessive business profit and externalities.
- Shelter the developing industries

Owing to the achievements of GATT/WTO, the rate of protectionism considerably decreased. At the same time, the scope of non-tariff barriers expanded, which is referred to as new protectionism.

The above issues require the EU to formulate a common trade policy by considering all those criteria that are applied differently to the different countries. These issues fall in the scope of trade policy and the single market. In the narrower sense, trade policy includes the application of tariffs and quantitative quotas with non-EU countries, as well as related principles and the enforcement of those principles.

In connection with trade policy, I have to mention past and present relations with the Central and East-European region, too. There had been no trade agreement between the EC and the COMECON as the COMECON refused to recognize the Community as a trading unit. The EC, however, argued that to conclude such an agreement the COMECON should have been supranational in nature. Eventually, a joint statement was signed in 1988 on the resumption of official ties between the EC and the COMECON. In trade policy, bilateral trade and cooperation agreements were typical. In the wake of the political changeover in 1989-90, Central and East-European countries expressed their request for EU integration, materialized in the form of association agreements.

3.3.3. Industrial policy

Török-Zsarnay (1996, p.220) points out that “the EC never had an industrial policy as such. This rather strong statement does not only suggest that compared to its policies on agriculture, the other principal sector, the Community failed to formulate a common policy on industry including objectives and measures. In fact, it means that there is no such thing as common industrial policy.” At the level of intentions, however, the issue of industrial policy was brought up several times.

A review by Hiritis (1995) suggests that economic circumstances in the 1950s and 60s, at the time of the establishment of the EC supported a laissez-faire industrial policy. For this reason, no reference was made in the Treaty of Rome to the need for an industrial policy. That time the purposes of integration were supported by the fact that the Member States opened up their market to competition and established a base for a common industry. These steps can be bold as first steps towards the single market. Late in the 1960s,

priorities were identified for the first common action program and laid down in the Memorandum of Industrial Policy. The memorandum proposed to develop an industrial policy that serves the purposes of economic growth and technological development in the frame of a European industry. The proposals were adopted in 1973 and, in fact, hardly had any effects. They included five major areas (Hiritis, pp.294-296):

- Establish a common market by removing barriers to intra-Community trade.
- Harmonize law, taxation and finance as well as grant the right of undertaking. This should be used as a basis for the development of a European Company Law. This way companies would be formed in accordance with Community law rather than that of the respective Member Provide active support for intra-Community mergers to help European companies meet common market requirements and maintain a competitive position towards non-EU companies.
- Improve methods of management to help the companies smoothly adjust to changing industrial and employment conditions.
- Build a shared attitude and establish solidarity in the Community against external competition. In addition, elaborate a Community funded Research and Development scheme, involving all Europe.

Ideas on an active industrial policy began to materialize in December 1982, followed by the drafting of memoranda with specific details. Then a proposal was made to protect the industries endangered by international competition, including the steel, textile, clothing, shipbuilding and car industry and promote the development of high-tech industries. Also, an agreement was made on the need to strengthen the internal market, speed up industrial research and set aside greater reserves for investments in industry, high technology and energy management.

At the same time as the Member States drew up their memorandum, in 1983 and 1987 the European Roundtable of Industrialists (ERI), a lobby group consisting of the CEOs and presidents of the major European corporations recommended programs for a common industrial policy. A key element of the programs was the creation of a single market. It appears that it was the establishment of a single market rather than EC proposals and programs that brought about the adjustment of the European industrial structure and enterprises at an EC level: a great number of enterprises joined the supranational associations of the EC, established joint ventures with companies from other Member States, international mergers and acquisitions took place, and at the same time SMEs entered a closer cooperation with large companies to survive.

The purpose of the EU's industrial strategy is to improve the business environment. In order to do so, the EU encourages integrating the European market and making any necessary changes in the industrial structure. A great number of integrated research programs were launched to help the EU catch up with the United States and Japan in terms of state-of-the-art technology, production and trade. The most problematic areas of industrial policy are as follows: the lack of consistency and coordination of measures by the Member States, an increasing international competition, the restructuring and renewal of the industry as a follow-up to rapid development of technology.

Török-Zsarnay (1996, p.220.) points out "the notion of common industrial policy, although not in the traditional sense of the word, first appeared in the Maastricht Treaty.

/.../ The most significant intent was to improve the competitiveness of Community products, as earlier national industry political measures had failed to do so. To this end, a more suitable economic environment had to be developed within the Community to protect national efforts and strengthen the Community at large in terms of economy". It appears that a competitiveness approach prevailed in industrial policy. A review by Csernenszky (1998) suggests that some of the objectives stated in the Maastricht Treaty such as restructuring, the improvement of enterprise environment as well as a better exploitation of the industrial potential relying on technological and scientific developments may be considered as competitiveness policy objectives. From 1994 efforts were made to strengthen horizontal policies related to R&D, environment protection and SMEs.

As part of the institutional reforms of the Commission in 1999, the organization of the EU was restructured. The new structure enforced on January 1, 2000 reflects a competitiveness approach as well. The newly formed Enterprise DG is responsible to integrate industry, SMEs, innovation areas and their former DGs. The Enterprise DG is committed to "supporting a business environment that supports the European enterprises fully exploit their potential, supporting economic growth and job creation within the European Union." (EC 2000b). The Enterprise DG consists of the following directorates:

- Enterprise Policy
- Promotion of entrepreneurship and SMEs
- Innovation
- Services, commerce, tourism
- Environmental aspects of enterprise policy, specific industries
- Single market, regulatory environment, industries under vertical legislation
- Conformity and standardization, new approach, industries under new approach

In the course of the operation of the EU, there has been a shift in focus in the industrial policy. In the 1990s, commitment to improving the competitiveness of the industry was given high priority. This intention was reflected in the restructuring of the DGs within the Commission. It appears that the leading corporations and their lobby groups had a major part to play in developing, implementing and identifying priorities for industry policy.

3.3. The EU's approach to competitiveness

On the one hand, the EU's approach to competitiveness covers the entire EU. This suggests that competitiveness for the European Union includes assessing the competitiveness of the EU as an economic region, and drafting related EU policies. On the other hand, the fact that the EU's economic integration is composed of national economies brings about problems and impacts that do not occur with a nation state or a federation such as the United States. Experience with single markets shows that a structure composed of nation states requires a longer time for adjustment and the special decision-making mechanism of the EU drags the process further out.

In December 1993, the European Council adopted a White Paper on competitiveness, entitled "Growth, Competition and Employment". The Paper discussed the issue of

industrial development from the perspectives of global competitiveness; factors generated growth, and employment. In response to the Paper, the Commission issued a great number of reports and proposals and, as a result, a decision (EC 1996c) was passed in 1996 to make a report on EU competitiveness every year.

According to the Commission (EC 1996c), the competitiveness of the European industry is a prerequisite for sustainable economic growth and it contributes to the EU's economic and social cohesion by creating jobs. Fundamental action program principles designed to improve the competitiveness of the industry include:

- Renew intangible investment, industrial cooperation as well as the industrial aspects of competition. Update the role the authorities play.
- Promote the establishment of a learning society, in particular by supporting life-long learning.
- Support industrial cooperation in specific situations with countries in the following regions: Central and Eastern Europe, Baltic states, CIS countries, the Mediterranean region, Latin-America, Asia, ACP and South-Africa.
- Strengthen and deepen relations between the EU and the US by improving Trans-Atlantic Business Dialogue.
- In cooperation with the directorate in charge of trade policy, the qualified national authorities and the industry put together a database that lists the obstacles to be overcome in third countries by the European enterprises.
- Study the relocation of industry and services, and report to the DG for Industry on the findings.
- Improve the operation of the single market, particularly by speeding up standardization procedures and supporting Member States initiatives to remove barriers to intra-Community trade between the enterprises.
- Analyze and strengthen complementarities between industrial activities and complementary services.
- Make a report on the competitiveness of the European industry each year.
- Provide a regular report to the DG for Industry on the current action program and the adjustments to be made in the following years.

A report made in 1996 on the competitiveness of the European industry addresses eight areas (EC 1996b). On analyzing the individual areas, the report used descriptive statistics for each EU Member State. As for EU statistics, the EU average served as a basis for comparison. As for international statistics, Japan and the US were used as point of reference. The areas under scrutiny include:

Performance of the European economy

This chapter starts with an analysis of living standards in the EU. The analysis starts out from the presumption that living standards are determined by two factors: employment rate and productivity. The section attempts to decompose the two factors by analyzing capital-productivity, workforce, investment and taxation practices.

Performance of the European industry

This chapter asserts that the performance of the European industry depends on the performance of the enterprises. Therefore priority has to be given to the identification of mechanisms that establish a relation between enterprise competitiveness and

macroeconomic performance by converting enterprise performance into high growth, improved productivity and job creation. Accordingly, the chapter provides an analysis of the EU enterprises (a breakdown of enterprises by size, an analysis of their performance), followed by a breakdown by sectors, an analysis of the performance of technology, and finally an assessment of the enterprise profitability.

Internationalization

This chapter studies two domains including trade performance and foreign direct investment (FDI). The analysis of trade performance addresses export and import relations as well as comparative advantage. The section on foreign direct investment studies the EU stake in the world FDI, the size, the origin and destination of inwards and outward FDI.

Labor markets

The section provides a breakdown of the labor market by employment rate and employment composition. It also addresses employment costs and wages as well as workforce mobility and flexibility.

Corporate finance

Sources, composition and related expenses of corporate funding (retained earnings, new equity and debt) are discussed. The chapter includes a comparison of corporate funding within the EU.

The operation and competition of markets for services

This chapter provides a breakdown of services by sectors including telecommunications, transport, energy and business services. Business services are considered important competitive clusters including professional (e.g. legal, accounting services), technical (e.g. quality control), operational (e.g. cleaning, office services) and marketing services (e.g. advertising, market research, fairs and exhibitions).

Intangible investments

The report studies the application of knowledge and skills. It addresses Research and development, achievements, patents and human resources.

Organizational and product innovation

The chapter studies innovations from the perspective of organizations and products. Accordingly, the organizational and management solutions including lean-management, TQM, and just-in-time methods that improve operation are regarded as organizational innovations. To measure operational efficiency, the analysis uses sales growth per capita. As for product innovation, the chapter reviews the following areas: making a product more appealing, speed of new product development, cutting the payback period, and the rate of new products. The section also addresses the sources of innovations (own, co-operative) and provides an analysis of the diffusion as well as issues of financing and institutions.

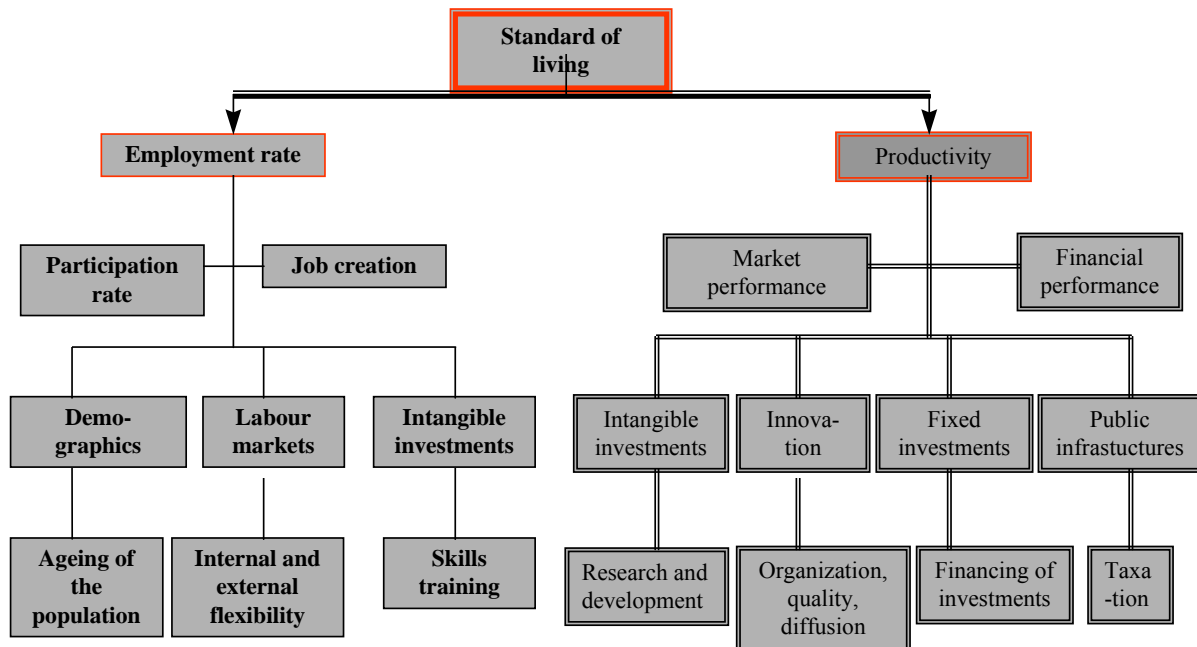
Environment

The chapter focuses on requirements related to environmental protection, the costs involved and some features of the environmental protection as a sector. It also addresses

the relations between environmental protection and market efficiency, as well as environmental protection and innovations.

The structure outlined above is in accordance with the competitiveness approach set for the European industry (EU 1996c). According to this approach, competitiveness can be interpreted as a pyramid (see Figure 3.2 below). This Table is in line with the concept developed by the European Roundtable of Industrialists in 1996, which relied on a similar approach for enterprises and regions. Both concepts propose to make benchmarking, identify and measure points of reference as well as analyze and follow-up on best practice. The same approach is applied by the Fifth research and technological program (EC 1999b and EC 2000a) designed to improve the competitiveness of the European industry for 1998-2002.

Figure 3.2 Competitiveness pyramid of the European Union



Source: EC, 1996, p.9.

Living standards are placed at the top of the European Union's competitiveness pyramid suggesting that competitiveness has to improve the EU citizens' living standards. According to this approach, the improvement of living standards are in fact determined by two factors: employment rate and productivity. This implies that a policy aimed at improving competitiveness is expected to create jobs and improve productivity at the same time. The left hand side of the Table shows a breakdown of the employment rate, highlighting the major macroeconomic factors affecting employment and the relations among them. The right hand side of the Table summarizes the factors affecting productivity. Decomposing productivity puts the micro level into the focus of productivity improvement, as Porter (1990), Dertozous et al (1989) and Scott-Lodge (1985) emphasized. The listed categories primarily include business categories. Nevertheless, they are interchangeable and measurable within certain limits at both macro and micro level. This approach suggests that productivity is primarily determined by two factors:

market and financial performance, influenced by intangible investments, innovations, fixed capital investments and infrastructure. We must stress at this point that giving high priority to intangible investments and innovations is a sign of the intention to establish and improve a knowledge-based economy and society.

3.4. Summary

To sum up, the European Union's approach to competitiveness includes the following:

In the global economy EU should maintain its competitiveness toward the U.S., Japan and the Far East. So the aim of the EU is to maintain its position and sustain its economic performance towards those regions, particularly the other two major members of the Triad. As an economic integration, the European Union represents a new tier in world economy.

Under the Treaty of Rome, the Member States established the European Community because they were "committed to paving the way for an ever closer union among the peoples of Europe and securing the economic and social growth by the removal of the barriers dividing Europe through joint action. They confirm that the primary objective of their efforts is to continuously improve the living and working conditions of their people." (Hiritis, 1995 p.62.). This intention is crucial, as competitiveness should be considered to be a means of implementation rather than an end in itself. This approach is reflected in the fact that sustainable development and job creation are central to EU competitiveness.

The competitiveness of the EU is supported by several EU policies in an indirect way, including the single market, trade policy and industry policy. These policies are primarily there to improve the efficiency of the EU's economy as a whole, and sustain and strengthen its world economic position. In terms of competitiveness, these policies reflect the intention to improve the conditions of internal, intra-Community operation and thus pave the way for increasing competitiveness outside the EU.

In strengthening the EU's competitiveness, the improvement of industrial competitiveness is given high priority. It is treated as a key issue by the General Directorates, especially in the field of industry policy and from the beginning of 2000 by the Enterpriser DG. Competitiveness Supported by the Fifth research program rendering projects and resources for it.

In terms of competitiveness, the EU's approach to industry does not use the traditional breakdown by sectors. There is a tendency to support the competitiveness of the companies that do industry and services. The traditional approach based on a breakdown by sectors is important for the sectors that are either problematic or critical from a competitiveness point of view. That approach is akin to US competitiveness approaches.

EU programs and proposals on competitiveness advise to study and diffuse the best practice and methods, and identify benchmarks for the monitoring of competitiveness. This can be relevant for the Hungarian economy, as competitiveness criteria are included among the accession requirements to be met by Central and Eastern Europe an countries. However, since no considerable methodological progress has been made in this field, it is rather difficult to judge whether or not the requirements are met.

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4. Some research findings about the Hungarian competitiveness

In this chapter I review the research done in Hungary in connection with competitiveness. The goal is to show the novelties brought in Hungarian research by the competitiveness research in the framework of „*In global competition*” research program. As the review written by Szamuely and Csaba (1998) about post-war economic research issues in Hungary could not give us a full view of Hungarian economic research, I do not find any means to do it so either. The writers reviewed research and results concerning the investigation of the „macroeconomic system and the views and perceptions in connection with it, and the development of theories that are sometimes closely connected with practice” (Szamuely-Csaba, 1998,p.8). As the writers emphasize, the survey of textbooks used in higher education and literature on enterprises cannot be found in their review. In the transition period of 1989-1996 many studies were written in these fields that established the approach and research of the Hungarian economy by market economy theories. In their review the authors divide the 1945-1996 periods into two parts. The first is the 1945-1970 period, which is actually finished by the first experience of the new economic mechanism. The second is the 1970-1996 period, which is the time of reforming socialism and creating market economy. Partly on the basis of the above quoted work, and partly on the basis of my own research I am prepared to outline that competitiveness research necessarily appeared in the middle of the 1990s, while the transition was going on in Hungary. The character of the Hungarian economy had raised some questions on foreign trade adjustment even earlier.

The chapter consists of two parts. At first I review ideas formulated in connection with foreign trade and industry adjustment by the end of the 1980s. After that I give an account on the problems covered in the reviews of the 1990s. Admitting that research issues chosen at random are not unquestionable, there is a line formed by the reviewed literature, which shows that there was a transition in Hungarian research, as well. It came after practice in choosing, revealing and approaching the examined problems and it shows a close relationship with the research typical for market economies. One of its explanatory factors is the creation of market economy and appearance of its special problems. The other factor is the quick adaptation of knowledge necessary for this phenomenon.

4.1 *The world economy, foreign trade and industrial adjustment at the end of 1980s*

The Hungarian economy can be regarded as an open economy since World War I. As a consequence, economic research has almost always dealt with foreign trade relationships to a certain degree because of its practical relevance since then. In the approach of Szamuely and Csaba (1998) the investigation of foreign trade relationships in the period between 1945 and 1970 came up as a reference point of setting prices and a push for achievement of international level of performance. The basis of this approach was given by the article of Tibor Liska and Antal Máriás (1954) in the first issue of the newly launched *Közgazdasági Szemle* (Economic Review), who, in analysing the textile industry, argued for being align with world market prices as the case of such a little country like Hungary. Keeping in mind our topic the final event was perhaps the lecture of

Béla Balassa read at Marx Károly Közgazdaságtudományi Egyetem (Budapest University of Economics) in 1970.

In the interpretation of Szamuely and Csaba the second period means the post-1970 era. After the reform of the new economic mechanism, especially in the 1980s, that approach became stronger which said that the Hungarian economy, because of its given size, could sustain the intensive growth just in case of integration into the world economy. Furthermore, in this period, which is after the oil price crises of the 1970s, it became clear that foreign trade both with the COMECON countries and with developed capitalist countries is essential for the Hungarian economy. The situation evolved by the political change in 1989 can be characterized by the works about foreign trade in which there were often critical analyses and suggestions in the works about world trade adjustment, which went beyond the horizon of national economy, limited by ideological taboos and government non-acceptance „because of the backwardness of practice and hopelessness of having changes”.(Szamuely-Csaba,1998,p.129) After that the authors analyze the works from the point of view of the economic reform. In the second half of the 1980s there were four fields where different ideas were formulated on changing the Hungarian economic reform in their system. These are the organizational reform, the reform of the monetary system, ownership reform, and the opening up foreign trade. Although realizing the ideas given in the studies below were practically not achievable until the political changes in 1989, in the further part of this Chapter I emphasize those works which discussed the opening up foreign trade in the second half of the 1980s from different aspects, and which raised similar problems as it did the American competitiveness research approximately at the same time. My survey is arranged around three subjects, that is around world economy adjustment, questions of foreign trade, and approaches to industrial adjustment, taking into consideration that statements connected with competitiveness can be found in these fields.

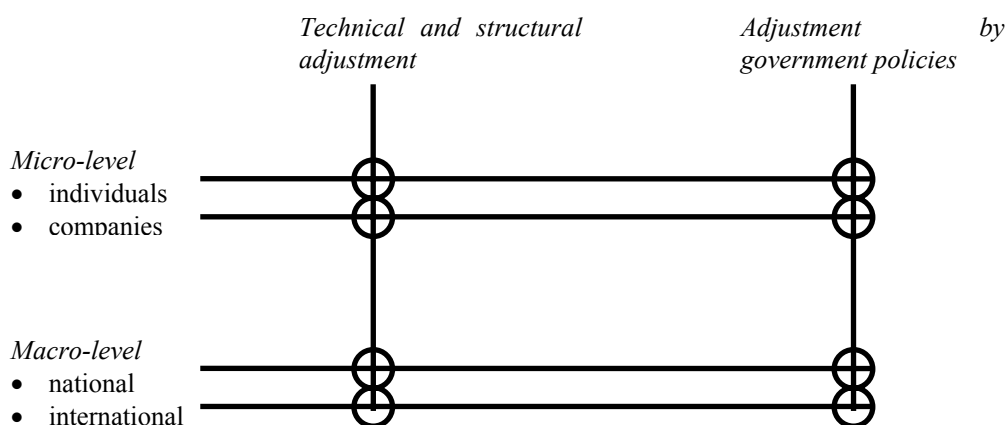
4.1.1. World economy adjustment

As I have already shown it in the 2nd Chapter, one crucial element of competitiveness is adjustment. Work of Palánkai (1986), this book is not reviewed for Szamuely-Csaba (1998), examined the world economy adjustment of developed countries. In his book Palánkai employed inductive approach and, referring to articles describing the phenomena and other documents, gives us an overall picture of those factors which droved the adjustment of developed market economies and enterprises in the middle of the 1980s. Meanwhile he draws attention to some theoretical relations. The book drafts the theoretical framework of adjustment, then lists the main tendencies of company and national economy adjustment. At the end he discusses the main tendencies of international adjustment.

He says in his introduction that „world economy adjustment is not a new task. It is of the same age as the existence of world economy. There has been a new situation in the recent world economy after the beginning of the 1970s. Compared to earlier times it requires grater intensity of adjustment, and solving more complicated problems./.../The adjustment to occurring problems from time to time has never been satisfying. In many aspects it had just started until the mid 1980s, like the structural modernization of the Hungarian industry.” (Palánkai, 1986, p.11)

Palánkai (1986) shows that the economic interpretation of adjustment referring to world economy is a novelty, while speaking about it in biology the situation is different. That is why he chooses a biological starting-point. From this point of view he interprets adjustment as „a modification of the qualities, structure and function of some organism which is caused by the external environment and its changes”(Palánkai, 1986, p.13). The adjustment makes the survival or the suitable operation certain. The must of adjustment and its process can be equally interpreted of the society and economy. The book interprets economic adjustment in the way given in Figure 4.1. It examines company adjustment from micro-level adjustment, and both the national and international adjustment from macro-level adjustment.

Figure 4.1. A model of economic adjustment



Source: Palánkai, 1986, p14.

The following characteristics of adjustment as an economic process are mentioned. (Palánkai, 1986, pp.19-22)

- This interpretation starts from certain actors of the economy who are conscious and active.
- It emphasizes actors' behavior. Their behaviors are formed by conscious recognition and assessment of environment and their subjective qualities.
- In the classical economic theories market mechanisms adjust.
- Adjustment is the object and category of applied economics.

By his summary, in the 1980s the micro- (enterprise) and also the macro-level adjustment in the developed market economies are obtained by the following factors:

- It is the second phase of the scientific - technical revolution when new, special materials and new sources of energy are employed, and application of computer technology is spreading.
- After the oil price hikes natural resources got overestimated.

- World economy becomes more and more international. World trade and, dependence of each national economy on foreign trade grow. International corporations again bigger and bigger importance in the world economy, and the international capital flow is increasing. At the same time global world economics problems have arisen.

As a consequence of the above factors, the national economies became dependent on each other. So the crucial factor of their development and efficiency growth becomes their role in the international division of labor, sums it up Palánkai, (Palánkai, 1986, pp.32-37).

We highlight the statements about enterprise adjustment in the book. (Plank, 1986, pp.76-105):

- Rapid technical and structural modernization can be seen because of fast product changes and the reduction of product life cycles. The same process can be seen in the system of productions, especially because of the influence of computer technology.
- Enterprise reconstruction can be seen, especially after following the examples of Japanese companies.
- Concentration, decentralization, and specialization become the means of world economy adjustment, which make the living space of little and intermediate companies bigger.
- Market competition in oligopolistic markets becomes fierce, and it appears in many fields and sectors.
- International cooperation among enterprises are increasing.
- Appearance of the transnational industry structures can be seen.
- Money and credit markets became even more international, and the number of players became more than before.

With the reference to the national economy adjustment he draws attention to the fact that four factors became crucial: growth, structural change, inflation, and managing unemployment. To manage these problems new instruments of economic policy employed, like for example, investment instead of direct subsidies to encourage of modernization in structural policies, revitalization of privatization, and cutting back the welfare states' former scope. In connection with the main ways of international adjustment he draws attention to the regional rearrangement following technical development. He points out the lagging of Western Europe and the United States behind Japan in the mid 1980s, and significant international cooperation takes place to change this situation. International institutions (like OECD, GATT, IMF, EEC) move to harmonizing their member-countries' economic policies. These institutions also actively shape the institutional terms of international division of labor. For example, GATT plays an important role in the liberalization of international trade, and so does it in the shaping of new tendencies of trade policy. After presenting the developed countries adjustment tendencies, he also gives lessons for the Hungarian economy. Hungarian economy needs to be modernized technically. In that process intensive cooperation between enterprises, especially between the Hungarian and Western market economy companies, is vital. The adjustment of the Hungarian economy is inconceivable without additional capital investment. The author's conclusion is that the key of successful intensive development among the above described world economy tendencies is how the Hungarian enterprises

would be able to join transnational industry structures. To be successful, improving conditions of joint ventures is of great importance. By Szamuely-Csaba (1998) András Inotai's doctoral dissertation of 1990 also presents this thought. Palánkai formulates suggestions concerning the competitiveness of the Hungarian economy, which give a lesson about company productivity. Realization of these suggestions really harped upon the political frames of the Hungarian economy.

4.1.2. Foreign trade adjustment

In the review of Szamuely and Csaba (1998) works published about this topic touched the most the following fields: orientation of foreign trade (e.g. Kádár, 1979 and Inotai, 1980), comparative advantages and foreign trade (Török, 1986), foreign trade and its relationship with exchange rate policy (Riecke - Szalkai - Szász, 1985), and at last, investigating foreign trade, especially with the COMECON (e.g. studies of Köves, and Oblath). Works in how the practice of Hungarian foreign trade influenced the performance of the internal economy.

The work of András Nagy (1977) can be considered as one of the keynotes of the 1980s. The book gives us a model and description of the international trade's structural analysis, and a prognosis of the international trade's flow. As research precedents, the author mentions the research done first in the KOPINT, between 1969 and 1973, then in MTA Közgazdaságtudományi Intézet (Hungarian Academy of Sciences, Institute of Economics) between 1973 and 1974. The author points out that the interest towards the whole of world trade incited in the 1970s gained more and more ground, besides the research reviewing bilateral and multilateral commerce of countries or zones. The reason of it, on the one hand, is the growing interest towards decisive factors of foreign trade, which became more important. On the other hand, there are 15-18-year-long periods for analysis at our disposal. When doing research, these analyses put emphasis on groups of products. Gravitation models did the first modeling approach. The goal of it was „first of all to make factors influencing the flow of world trade measurable. That is to make such a theory which can be verified by statistical observations.” It was a new approach in many respects that derived, or sometimes even opposed the "pure theory" of international trade. (Nagy, 1977, p.29.) I picked out this work because it meant a sort of appeal for quantitative research of foreign trade relations. Later several such studies were written.

The other also determining writing is the work of Botos (1982), which investigates the relationship of international competitiveness and price revolution. Perhaps this is the first book that expounds competitiveness systematically in Hungary in the area of Socialism. The basic premise of the book is that the fuel price shocks of 1973 and 1974 influenced heavily the world market prices, and such events could be made visible with long-run trends. The author tries to find out what characteristics the oil price shocks had on products and country groups. It deals also with the lesson given by statistical analyses concerning some countries. It defines the notion of competitiveness at the level of products and economy. In this sense the competitiveness at product level means that the company can enter the market with lower prices, better quality and better supply services than the competitors. For a long lasting, in the author's opinion at least two of the three components should exist. Competitiveness at national level the most crucial point is if the

GDP grows or not on the basis of foreign trade. For having a positive foreign trade effect in the growth of GDP it is necessary to have a higher productivity, or expenditure lower endowments' than in the competitors' countries. Botos, 1982, p.33). To measure competitiveness the author finds the price indices (average change of products prices), the world market price indices (the price change of the most important products in world trade), and also the change of terms of trade index applicable.

One important statement of the analysis concerning Hungary is that after the oil price shocks the Hungarian economy's international competitiveness definitely started to decline. The reasons of it were the unfavorable changes in terms of trade, also the low productivity of labor, and the significant underdevelopment of technology. In the author's opinion "we can not think of a significant improvement in the Hungarian economy's competitiveness by the turn of the millennium, unless the situation changes in the respect of technological transfer and interest." (Botos, 1982, p.169) We can learn from the international statistics that in the second half of the 1970s finished products' prices rose more intensively, and the pace of the change of product structure and modernization was accelerated. To keep up with these two tendencies the author suggests different factors to improve effectiveness of company management: to improve solvency, a change in product line in a way to make the competitive products dominant, better employment of capacity, to improve cooperative relationships, keep deadlines, develop spare part supplies, improve after sales and customer of services. You can keep up with the changing environment just in case „if our economy keeps its openness, even if it temporarily seems to be disadvantageous in a given moment, if it improves its intellectual flexibility, and if it develops entrepreneurial skills”, says the author. (Botos, 1982, p.185) . This work came to the same conclusion as Palánkai (1986). That is to the necessity to create an openness economy. All in the entire author had suggestions at the beginning of the 1980s very similar to this day's to improve competitiveness. The reason of it is that the author started from the price competitiveness and followed an economic reasoning.

Debates over competitiveness in the 1980s can be divided into two parts. The first group includes works about the Hungarian economy's openness, and the other one focuses on the productivity of economy, emphasizing the role of structural and company issues in the growth of export efficiency. The review of openness theories and debates can be found in Práger's work (1998). He recalls the main issues in the light of joining the EU, and forms some questions of it on the basis of the home and international economic processes. The openness theories of the 1980s touched the following questions (Páger, 1998, p.1026): the degree of openness of the Hungarian economy, foreign relations, openness of politics, openness of human relationships, openness of cultural relationships, and at the end, openness of the country's internal institutions and mechanisms. This approach asserts in the classification the fields of would-be changes to create economic openness. The analyses about foreign trade seemed to be extremely critical until the end of the 1980s. The course of apparent tendencies showed that the Hungarian economy's vital interest was foreign economy and foreign trade openness. But the Hungarian economy was linked to COMECON, so its opportunities for further development were limited, and the attributes of the political and social system also contributed to it.

4.1.3. Industrial adjustment

The formulation of proposals concerning industry is tightly connected with the research done in the Ipar- és Vállalatgazdasági Kutatóintézet (Research Institute of Industry and Enterprise Economics). The symptoms of weak industry, and means of their management to improve industrial efficiency, were discussed by Román, Zala and Viszt at the end of the 1980s (1988). Two studies of that book included the analysis. Zoltán Román in his study *Ipari szervezetünk jelene és jövője* (Present and future of our industrial organization in Román - Zala - Viszt, 1988, pp.9-54) first described the situation of the Hungarian economy in the 1980s. It stated that economic growth slowed down, and at the same time the balance of production and consumption of the national income was negative, inflation started to grow, growth rate of export volume was decreased, like the terms of trade rate. After 1982 the most important macro economic priority behind those phenomena was the maintaining the solvency. This economic priority took stabilization as its most important task in the first place, instead of adjustment. There could be seen inconsistencies in the policy and practice of government. Meanwhile company and personal motivations were reduced.

Zoltán Román considered structural adjustment of enterprises as the most important duty. Three factors should have been necessary to have it performed. First companies should have given more freedom in shaping their operations. (e.g. strengthening of inter-company cooperation, more financial and organizational and flexibility). The second factor would have been releasing general impediments, such as e.g. responsibility for producing goods and providing jobs. The third factor is the economic openness. This one would have meant the must and inducement, which could have made the companies adjust constantly. In connection with international competitiveness he outlined the conditions of it as it follows: „ a) the expenditures of our products should not exceed the sum justified by world market prices and b) our lag at work productivity should not be bigger than the difference in wage levels, or our productivity should be higher than that of the developing countries’, which have lower wages.” (Román, Zala, Viszt, 1988, p. 34.)

The other study in the book was made for the long-term planning program of the Állami Tervbizottság (State Planning Committee), and it is called *Termelékenység és versenyképesség* (Productivity and competitiveness). The study starts up with a definition of productivity. The authors show that in measuring productivity they try to take into consideration more and more factors, like measuring the improvement of quality and they give some examples for that. In their understanding competitiveness is a broader category than productivity. In international competitiveness the features of the product and its quality have a major role, and the more unique the product is, the less important the productivity, the market share, relative prices and the exchange rates are. „ From the example of the developed countries we can learn that. They consider the productivity growth is important only if it helps to improve competitiveness.” (Román-Zala-Viszt, 1988, p.62) They mention practices of, the United States and Japan. In the example of the United States, they perhaps referred to the Reagan package to improve competitiveness. They picked out three factors: supporting research, reduction of central regulations, and encouraging export. In discussing decisions of MITI (the Japanese ministry of industry on selecting competitive industries they point out two factors, one of them was the productivity and the other was the R and D and the value added production. In Hungarian

situation, they had a look on how the changes in productivity influenced competitiveness. They measured productivity in the face of labor productivity and wage level changes. They stated that nominal wages in the 1980s were above the labor productivity index. Main reasons for lagging productivity in the Hungarian industry can be attributed to limits of rational utilization of resources. In the background of it both the economic policy and enterprise factors can be found.

4.2. Specific problems of transition and questions of market economy in the 1990s

The studies of the first half of the 1990s dealt with the questions of transition. In the review of Szamuely-Csaba (1998) the bibliography of the first half of the 1990s was directed towards two subjects. The first tried to find out what sort of capitalism could be created in Hungary. The second had its aim to interpret and describe the going-on processes (e.g. Árva, 1995, Hamar, 1996, Kapitány, 1996, Várhegyi, 1995, Voszka, 1995). We can put into the first group ideas about ownership (e.g. ed. by Lengyel, 1988, ed. by Matolcsi, 1991, Sárközy, 1991). The descriptive wing did research upon the industry, and partly on company adjustment. During the economic transition such a serious structural changes started up, that research aimed at companies was made really difficult. In the Hungarian economy this period was about the build-up of the market economy institutions, and reintegration into world economy. Most of the authors dealt with either the macro questions of transition, or were solving concrete company problems as consultants. This period touched thoroughly the establishment of economic research too. The earlier state dominance disappeared in the way making research institutes limited companies (like Gazdaságkutató Rt., that is Economics Research Ltd., Pénzügykutató Rt., that is Financial Research Ltd., Kopint-Datorg Rt., Növekedéskutató Rt., that is Growth Research Ltd.). At the same time the determining influence of academy institutions in economic research was reduced. In the higher education institutions this period was devoted to the creation of new subjects or renewal of the old ones. For some years the starting point of that was the developed countries' practice, which could have been underpinned by Hungarian examples with difficulty.

We should keep in mind two characteristics of the Hungarian economic research. In the 2nd chapter, which described economics research, I pointed out that economics and business and management research were tightly connected, and business and management research is usually put into enterprise research, see e.g. Szamuely-Csaba (1998). The other characteristic of the Hungarian economic research is that it was rather political economics research than economic research. Two schools are distinguished here. The most remarkable approach represented by János Kornai's works that analyze problems systematically (e.g. Kornai, 1993a, 1993b). The other school relies on international economics literature with less effort on systematizing and more on giving practical advice. First of all, books published by Növekedéskutató (Growth Research Ltd.) could be put into this group (Árva-Diczházi, 1998, Cséfalvi, 1999, ed. by Matolcsy). We can find political economy approach in writings about the transition. This is justified by the nature of transition, which is deeply influenced by the social circumstances of the Hungarian economy.

4.2.1. Questions of transition

The basis of the Hungarian economy's transition on economic policy level was created by the reform draft of the Németh government in 1988 in the opinion of Szamuely-Csaba (1998, pp. 138-141). In that draft there was „the emancipation of private ownership and liberation of trade and the market of all production” (ibid., p.138). After the set-up of the new Antall government" realized and formulated soon that the guarantee the competitive nature of the economy is the main link between private ownership and efficiency”, move on the authors. (p.140) In their opinion "the *main distinctive feature of the Hungarian transition is prevailing continuity and spontaneity* dominating plans for transition. It is particularly emphasized /.../ by comparative international analyses. It is inevitable in each case, where business considerations proved to be more important than political/social shaping elements /.../. Whatever is the analyst's judgement, *the dominance of business sales forms undoubtedly formed the aspects of the Hungarian capitalism.*” (p.141)

One should agree with the above assessment, keeping in mind that many case studies seem to underpin the important role company management played in the privatization ownership structure (e.g. in the case of Graboplast Marosán, 1996). When assessing the privatization of pharmaceutical industry Antalóczy (1999), or when analyzing the privatization structure, Voszka (1995) came to the same conclusion.

The Állami Privatizációs és Vagyonkezelő Rt. (ÁPV Rt. State Privatization and Trustee Ltd.) launched a series on national privatization. Volumes contain well-documented descriptive analyses about different sectors. The documents are from ÁPV Rt. I used the volume dealing with the pharmaceutical industry, which is the above-mentioned Antalóczy book (1999).

4.2.2 Problems of market economy

The research of the second half of the 1990s describe the problems of the Hungarian market economy, such as foreign direct investments and their influence on the whole Hungarian economy (e.g. Árva-Diczházi, 1998, Árva, 1995, Éltető-Sass, 1997, Éltető, 1999, Hamar, 1996, Szanyi, 1997), and the problem of globalization (e.g. Cséfalvi, 1999, Matolcsy ed., no year). In this period writings dealing with competitiveness also appeared (e.g. Török, 1997, Findrik-Szilárd, 2000), like writings trying to test market economy models on data of the Hungarian economy (e.g. Török-Petz, 1999). With closing the transition and with the arising problem of joining the European Union, the number of studies dealing with the experience of those countries that joined it, increased (e.g. Nagy, 1999a and 1999b, Farkas, 1999, and also see the bibliography of Chapter 3).

Question of foreign direct investment. In connection with this subject I pick out the work of Árva (1995), Árva-Diczházi (1998), Éltető-Sass (1997), and Szanyi (1997). Árva's work gives a review of the foreign direct investment in our region. It presents the world tendencies of foreign direct investment, and East European experiences. Then he describes the institutional frames of foreign direct investment in OECD, and the countries in our

region. From a certain point of view the Árvá-Diczházi work can be regarded as a continuation of the book of Árvá. It brings some new when presenting case studies on the Hungarian situation to make us feel the influence foreign direct investment had on companies' behavior. As for the footnotes, the other two works are connected. Szanyi's work (1997) contains a theoretical review, and the Éltető-Sass work (1997) contains the results of empirical research. In the Szanyi paper (1997) there is a novelty of dedicating much room to transnational (global) enterprises' motives. The Éltető-Sass paper (1997) investigates company motives, from the point of view of investments and exports.

The challenges of globalization. Many translated books were published in Hungary upon globalization. The specialty of these publications is that they usually coincide in two fields, that is in diagnosis, identifying the phenomenon's many features, and in the conclusion to have a doubtful outcome of globalization. The other common feature of these books is that they are very eclectic both in their way of discussion, and listing the chosen examples. Neither of them tries to define the phenomenon of globalization (see e.g. Korten, 1996, and Martin-Schuman, 1998). Two Hungarian works on globalization are picked out, the first is Cséfalvi (1999) the other one is Matolcsy (ed., no year).

Cséfalvi reviews the phenomenon of globalization relying on German language literature with the intention to give a feasible scenario to the Hungarian economy, as a whole and Budapest. We should remark here that the precedents of this pursuit go back to the middle of the 1990s. Then the Magyar Gyáriparosok Országos Szövetsége (The Union of Hungarian Industrialists) had such a study made about the Hungarian economy with the same intentions in 1995. The most valuable part of the study outlines Europe's economic regions and the probable links to them. His statements on global enterprises are disputable. They miss the business and management approach and the basic Hungarian references in this field. The other work (Matolcsy, ed., no year) discuss globalization from the point of view of the Hungarian economy's growth perspectives, and it contains many authors' independent studies. These writings are essays. Some of them analyze macro statistical data, the others refer to company case studies and reports. The value of the volume is in its description of many fields (e.g. foreign direct investments, the problems of the Hungarian companies' expansion opportunities, problems of economic measure). It does not provide the authors' understanding of globalization. We should note that these outlined problems are the same in the works of foreign writers too.

In my understanding it, these works struggle with a problem which is a really challenging one. That is, it is really difficult to examine globalization from a single discipline's point of view, while the authors' pens are just led by the imminent threat of its nature. The already started-up work upon foreign direct investment shows that more scientific, professional results could be shown in this field than on globalization.

4.3. Summary

The changes in the Hungarian economy, both in economy and society, touched those relationships among which meaning of efficiency and competitiveness should be rethought. A very serious part of the 1980s research called attention to the main reference points, which should not be other than an adjustment to world economy processes. The

research workers dealing with world economy and foreign trade questions formed this opinion basically. The 1989-1995 period can be called the transition period. That time the political economy approach was dominant, which served a double aim. On the one hand, it formulated visions about the Hungarian market economy's formation, and on the other hand, it tried to describe and give a good interpretation of the going-on processes.

Since 1995 more and more writings have tried to describe the challenges and problems of market economies, and issues of competitiveness are frequently discussed. These works describe questions connected with globalization, like foreign direct investments, or the Hungarian economy's possible position in Europe. The writings about foreign direct investments show more scientific and professional results, despite the need for further research. The 6.1 sub-chapter of my thesis is about globalization. It describes the phenomenon from the enterprises and industry's point of view.

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5. Major lessons of the industry competitiveness research project of the “In Global Competition” research program

One of the goals of this chapter is to point out the findings of my research, which differ from those of other research projects done in Hungary in the 1990s. In this chapter, I will present a methodological description of “*Competitiveness of Selected Hungarian Industries*” research project carried out in 1995-1997 and list its most important findings. I will give an explanation of the concept for competitiveness as well. At the end of the chapter, I will draft my issues by which I chose the pharmaceutical industry and my research questions that will be analyzed and assessed in Chapter 6.

The following is the outline of Chapter 5. In Chapter 5.1, I will explain the most important concepts and frameworks that formed the industry competitiveness research project in 1995-1997. These concepts and frameworks will be also applied in Chapter 6, especially in Chapter 6.2. The methodological issues of industry competitiveness research project will be discussed in Chapter 5.2. There is a summary of the lessons of industry case studies completed in 1996-1997 in Chapter 5.3. Firstly, I will give a summary of the factors, which greatly influenced the competitiveness of each analyzed industry in 1989-1995. On the basis of Porter’s diamond model, I will review the factors, which determined the competitiveness based on the analyses of the industry case studies. In Chapter 5.3, I will give an interpretation of competitiveness on the grounds of the ‘*In Global Competition*’ research program and the industry case studies and their analyses. This interpretation of competitiveness will be specified at the end of Chapter 6 when assessing the competitiveness of the pharmaceutical industry. In Chapter 5, those industry competitiveness research issues will be drafted which will be analyzed in Chapter 6.

The hypothesis of the research project of industry competitiveness was based on the fact that a national economy can only prosper when they have industries which are able to meet the requirements of the international markets at all times under changing international circumstances. This is why the key issue of the national economic strategy is the formulation of the industry portfolio of the economy considering the fact that competitiveness is not only an endowment but it may be created and renewed. The analysis of competitiveness based on industry case studies is carried out on the grounds of this hypothesis.

Thus, the research of industry competitiveness first and foremost to prepare and analyzes the case studies of the selected industries of the Hungarian economy.

5.1 An interpretation of industry and competitiveness in the research project

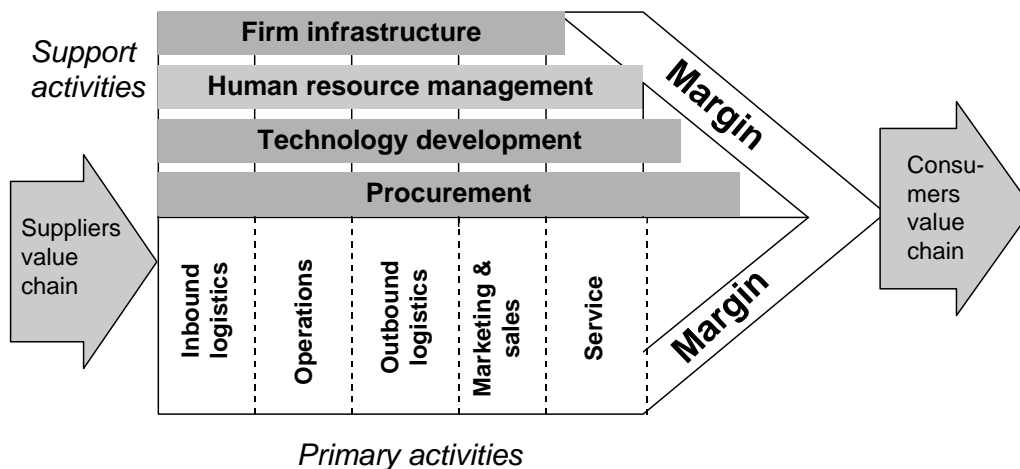
I relied on the works of Porter (1980/1993, 1985 and 1990) to formulate the research concept and the research plan. On the one hand, I considered Porter’s works to provide the framework to set the structure of the case studies; on the other hand, they seemed to be suitable reference.

An industry is a group of companies, which produce products that are close substitutes of each other (Porter, 1993, and Varian, 1991). Consequently, when defining an industry we take products as starting point. Companies competing with each other in the same market are considered to belong to the same industry. A basic review of the technologies employed in the products a product also belongs to defining an industry.

What requirements should a product meet? Basic needs and expectations of consumers and the functions, which a group of products wants to meet, are almost the same. As products and services are close substitutes from the viewpoint of economics their cross-demand elasticity is high. From the standpoint of statistical analyses, this covers the products and groups of products, which fall into the same statistical category.

How can a product be produced? Products and services in the same industry are produced through considerably similar technological steps, which cannot be eliminated. The applied technology, however, may differ from company to company. Consequently, it is necessary to know the basic activities of the production of products, that is the value chain as described by Porter (1985) in order to define an industry (see Figure 5.1). It is not only essential to know the value chain to define an industry but to discover the value creating activities which the companies of that particular industry need to have control over in order to create and provide value.

Figure 5.1 The value chain



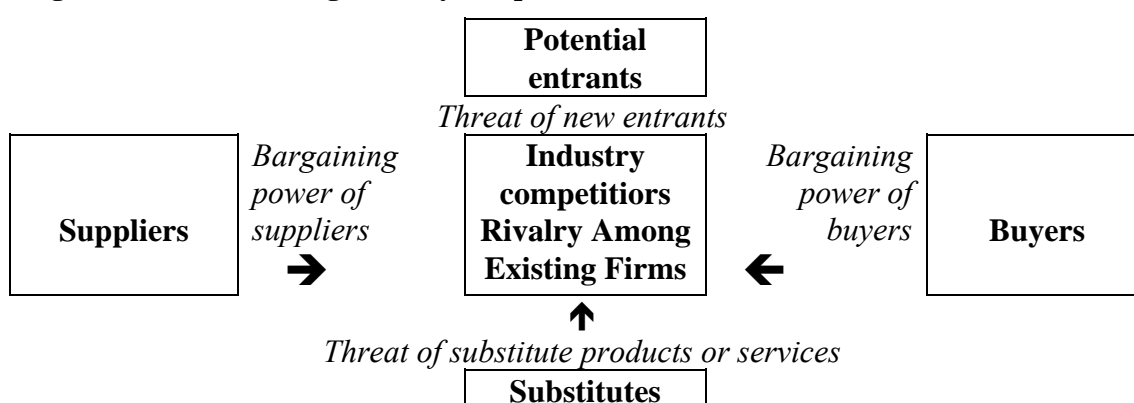
Source: Porter, 1985, p.37.

Who take or rather who are able to take a product to the market? All the companies that meet the two criteria referred above belong to the same industry. An industry means a group of companies competing with each other. Companies of an industry following the same or similar strategy may form different strategic groups. Sociologically, however, the competing companies of an industry set and follow industry standards, they make co-operation, and regulate themselves for the sake of the industry.

Before going on with Porter's concept, I want to point out one of the fundamental problems of this concept. It is the setting the boundaries of an industry. The above approach is theoretical, implicitly presuming that the companies operate in only one industry that is they are one-business companies. Or they are multi business companies

when they operate in totally different industries and they can exploit their synergy to improve their effectiveness. This model can only be applied with difficulty for analyzing industries including large diversified companies. This issue is especially exposed when talking about globalization. Global (trans-national) companies operate in a way that they cross not only the borders of countries but that of different industries. On the basis of Porter's concept, the following question arises. How can we define the boundaries of an industry in the case of global corporations and industries? I will return to this issue in Chapter 6.1. I state here that the root of the problem is the following. The economic theories and approaches of Porter's conceptions of economics concerned the national level with special regard to the theory of industrial organization.

Figure 5.2 Forces driving industry competition



Source: Porter, 1980, p.26.

According to Porter (1980) model there are five forces which influence the profitability of an industry. Porter's model is based on the theoretical context of the 'theory of industrial organization' and was developed to support competitive strategy formulations. These forces are the following: barriers to entry, bargaining power of buyers, and suppliers the threat of the substitute products, and rivalry within the industry. (See details in Chapter 1 Porter, 1980.) In addition to these forces, we must add the analysis of the prospects of the growth of an industry. It means an analysis of the factors influencing the consumption of the products of an industry. This is especially justified when the buyers of an industry are not the consumers of its products. Here we need to take into consideration the exports, which is a factor reducing the national consumption and the import, which is a factor increasing the national consumption. The analysis of an industry can especially be applied for analysis of national industries to map the changes in the competition. Companies with import and foreign direct investment will appear as newcomers for the incumbents. The question the incumbents will have how the newcomers will change the market competition within the industry?

My objective in analyzing the economic structure of selected industries was to explore those national factors, which influenced the opportunities and threats of companies in the examined period. Main forces and steps of competitors, which had changed industry competition, were to discover. Changes in strategic behavior of the dominant companies in each industry as a result of the new forces and the new competitors, were also examined.

International competitiveness at industry level can be defined on the grounds of Porter (1990) as follows. An industry is considered to be internationally competitive when its companies are able to meet the efficiency requirements of the international trade. By the requirements of the international trade, we mean that the companies of an industry are able to market their products in foreign markets. In addition to the exports, the foreign direct investments (FDI) is an indicator for the international competitiveness of an industry as well.

This means that the companies of an industry are able to export their products, they are also able to compete with import products. They are able to make capital investment abroad, and present in foreign markets with their own subsidiaries. These factors can be measured by macro-economic statistics: exports to its national production, and maintaining market share against imports, and outward FDI.

The above-mentioned approach of international competitiveness is based on national economies. When the competitiveness of the companies of the largest market economies is discussed, the boundaries of the companies do not only extend in a geographical sense but in terms of their ownership and operations. Moreover, the international strategic alliances fundamentally changed the traditional picture of a company in this regard. It raises interesting issues not only from the standpoint of research, such as the unit of research, but also the standpoint of competition regulation.

The macro-statistical data can be interpreted as reflecting company and industry effectiveness in meeting the requirements of the national and international competitions. The companies of an industry meet the effectiveness requirements when they make a profit. This comes from the fact that they managed to cope with the determining forces of the competition and they could take a position in the national and foreign markets by adapting to the changing market, regulation and technological environment. This involves the abilities of companies to change their own production factors, and choose their market positions in a way that they will accumulate sufficient resources long-term to carry out the necessary changes. Statistical data do not provide us with the right picture of the factors that determine or determined the behavior of economic actors.

Porter's research projects (1990) created a model of the factors that support national companies to become internationally competitive, and provide help in their foreign market operations such as developing export abilities and foreign direct investment. The title of the Porter's (1990) book about the findings of the research is misleading. It is not about the competitiveness of national economies. Rather it is about their companies' international competitiveness and their determining and influencing factors at a national level. This misunderstanding laid itself wide open to attack. In the further development of his conception, Porter calls his model 'sources of locational advantage' (Porter 1998. p. 211). It specifies the name and practically adjusts it to the content as I have already referred to it in Chapter 2. At the start of my analysis of the industry competitiveness, I choose Porter's diamond model (1990) to be a competent model to assess the sources of the international competitiveness in the selected Hungarian industries. Porter's diamond model has not changed significantly as a result of the experiences gained in the meantime. What did

change was the application of the model, especially for analysis factors creating industry clusters.

Considering the fact that we often come across misunderstandings in Hungary regarding the diamond model, I will briefly sum up the essence of it.

The factor conditions

All the inputs, from skilled workers to infrastructure, belong here which are necessary for a company to become competitive in a particular industry. This group of factors contains those components, which are essential to make products competitive. Their examination stands the closest to the traditional comparative advantage model. Some of these factors such as the capital and the workforce are part of the analysis. When analyzing the factor endowments, we need to put a special emphasis on the institutionalized mechanisms that play a role in changing the factor endowments. The following are these factors:

- Natural resources (e.g. favorable natural conditions, geographical location, natural resources)
- Infrastructure (e.g. transportation, telecommunications and the media, financial infra - structure, factors influencing the quality of life)
- Human resources (e.g. education, the role of public and private sectors in education, the structure of education and qualifications, foreign language skills, levels of aspiration, system of apprenticeship, participating in voluntary education, the relation between the educational system and industries, manager training, emigration, work relationships, role of trade unions)
- Knowledge as a resource (e.g. R and D expenditures, government and industry R and D expenditures, technical, market and scientific knowledge)
- Access to capital (e.g. savings of households, government expenditure, budget, interest rates, sources of capital tending, the extent of capital market, financing exports)

Competition between companies, changes in the national demand, related and supporting industries promote renewal of the factor endowments.

The demand factors

The national demand plays a determining role in creation internationally competitive industries. The following determine the national demand: the nature of the demand for the products of an industry, especially its segments, and expectations, the size, growth, and international nature of the demand. Customs, habits and hobbies, and the role of multinational companies forming the national demand also belong here. They are usually listed in two groups:

- Individual consumers (e.g. specialties of an industry, consumption per person in international scale, concentrated producers and organizations of sale, demanding national consumers)
- Organizational/industry buyers (e.g. multinational companies being important customers of an industry)

Fierce national competition has an impact on renewal of demand where the competitors play a significant role in influencing the customers to expect higher standards. The national competition contributes to the fact that the outstanding companies may gain significant national and international acknowledgement and appreciation. Excellent factor endowments may attract the international companies and they may have a significant impact on renewal of the national demand. Industries supplying to internationally

successful companies can become producers of internationally successful products themselves.

Related and supporting industries

International competitiveness research projects carried out earlier showed us that the companies/industries of the national economy are competitive in groups, 'clusters' and not in themselves. They are related to one another horizontally and vertically. In prominent international competitiveness of a company, those industries can play an important role which, produce supplementary products, apply similar technology, inputs, marketing channels or sell to common consumer segments. We can often notice that the companies of related industries are regionally concentrated.

The available factor endowments of a given industry can be transferred to the related and supporting industries. They contribute to their further development. Successful national companies encourage the production of special products and services. This way, they have an impact on the development of the related and supporting industries. Great and growing demand stimulates growth and improves the suppliers.

Strategy, structure, rivalry

This group of factors includes "the conditions in the nation governing how companies are created, organized, and managed, and the nature of domestic rivalry." (Porter, 1990, p.71) The social and political milieus greatly influence this group of factors. The following factors can be listed have:

- Objectives (objectives and motivation of managers and employees, dominant way of life, and life style influencing attitude toward work, prestige of business life, risk-taking versus safety, willingness to upgrading skills, self-training, non-economic national goals)
- Company objectives (e.g. ownership structure from the viewpoint of goal setting, the influence of the capital markets)
- Company strategies (focusing on costs or uniqueness of products, production versus market orientation, diversification, time horizon of planning, reactive versus proactive approaches, international orientation)
- Competition (to what extent the industries are concentrated, the concentration of economic power, the regulation of competition)
- The conditions and expenses of creating, the reshaping or closing down of companies

When factor endowments stimulate entries into an industry, it may lead to changing this group of factors (strategy, structure, rivalry). The companies of the related and supporting industries may appear among the companies of an industry by forward integration. Demanding buyers may stimulate the product development. The early national use of products and their success can stimulate new entries, which makes incumbents rethink their strategies.

Government policies

Government policies may have both a positive and a negative impact on all four groups of determinants. Some examples are as follows:

- In the case of the factor endowments, education, science and technological changes, the infrastructure, providing subsidies, and promoting or impediment informing the economic actors are mentioned.

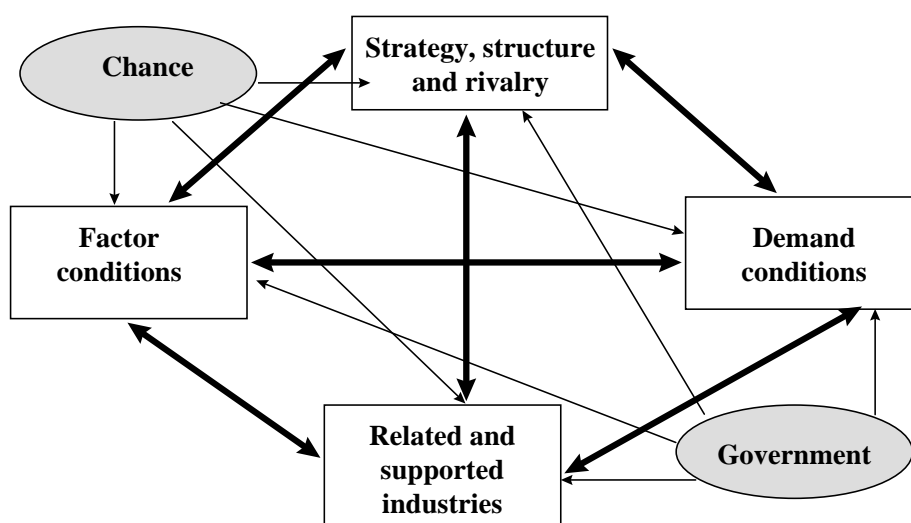
- From the viewpoint of demand factors, government purchases and standards are of greatest importance.
- Concerning the related and supporting industries, there are the industry supports, development projects, regional policies, and the media policies in connection with marketing.
- In connection with the strategy and structure, there are the ways and methods of markets regulation; the impact on the workforce (agreements of wages, minimum wages, bargaining mechanisms), and the impact of social and welfare programs on the motivation of the employees; trade and industry policies; liberalization and the conditions of establishing a company.

The role of the government decreases with the development of the national economy. In R&D and Welfare driver economies, companies formulate their own expectations and require indirect devices to create a favorable environment of their competitiveness. Government, should have a clear understanding of the particular conditions of the national economy, and should stimulate the exploitation of them. The government policies should enforce a long-term approach in their provisions to stimulate the companies of different industries to a continuous upgrading.

Chances

External, accidental events that are out of control of companies (and the national governments) belong here. They may influence all four determinants; they may change the structure of demand for instance, or influence the company strategy, organization and rivalry, and the related and supporting industries. Such factors may be big technological breakthroughs (e.g. in biotechnology, and microelectronics), original innovations, the sudden change of the cost of inputs (e.g. oil crisis), political decisions of foreign governments, or wars. These chances may be advantageous for the industries of some countries, and may be disadvantageous for others. From the standpoint of competitiveness, the determining factor is what a national economy is able to produce of these accidental events.

Figure 5.3 Determinants of national advantage: the diamond-model



Source: Porter, 1990, p.127

In addition, an industry is also considered to be competitive in a national economy when the economic structure of a given industry provides adequate profitability to foreign investors to run companies long-term on national premises. Based on the definition of competitiveness at the national level, an industry is also competitive when it attracts foreign direct investment. This may be a decisive factor in the case of countries with small national markets. In such a case, from the standpoint of foreign direct investments in an industry, it is worthwhile separating the attractiveness of a country (e.g. premises), and the competitiveness of the companies. (Daems, 1997, and Sleuwagen, 1988) This standpoint and approach of analysis was not applied 'In global competition' research program. It will be explained and applied in the next chapter.

5.2 Methodology of the research

The competitiveness research at industry level was based on case studies. I relied on the works of Babbie (1995), Christensen (1987), Stake (1994), Huberman-Miles (1994) and Yin (1994) in establishing the methodology of my research. Preparing case studies is very popular both in teaching and research in the field of business studies. Their application and the scientific validity of the explanations deducted, however, is argued. According to Stake (1994), case studies form a part of scientific methodology, which can be applied in improving theories. They can also be applied in further research of complex problems and setting limits of generalizations. He emphasizes that case studies can be especially useful for government policies. Huberman-Miles (1994) point out the fact that the greatest traps of case study method are the interpretation of causal relations, and the validity of the case studies, the analysis and the conclusions. In connection with causality, they point out that qualitative research projects may especially be applied to explore causal relations when the chronological order of local processes and events are important from the standpoint of the examined phenomenon. An audit, involving experts from the outside to assess the contents, the analysis and the conclusions of the case studies, can support validity. The transparency of the research process deserves especially great attention in qualitative research projects. I tried to avoid these traps by involving an advisory board into the research, from establishing the conception of my research to discussing the case studies and drawing the final conclusions. The members of the advisory board were experts of the selected industries, academic and government personal.

The purpose of the research was to discover how the companies of traditionally export-oriented industries managed and maintained their exporting abilities in Hungary in the period of 1989-1995. It was the period of privatization and the development of market economy. This period was characterized by an increased import and the appearance of new competitors of the developed market economies.

The research was based on Porter's models that, I explained in the previous chapter. These models seemed to be suitable to structure the qualitative and quantitative data and information, which could be collected about the industries. They could also be relied on to give an answer to the questions what happened and why in the industries? Porter (1990) applied case studies as well. He, however, did not provide methodologically detailed arguments for the choice of using the case study method. Next to the argument based on

the principle of authority, the following arguments give reasons for the choice of case study method.

Information about the industries of the Hungarian economy undergoing intense changes since the end the 1980s had to be gathered and structured in the midst of a learning process touching every level of the economy. The brief introduction of the history of a particular industry and the introduction of the international tendencies were to give a better understanding of the processes in the industries and outline their trends. There were no comprehensive descriptions about the industries to show what happened in 1989-1995. The statistical data system of the Central Statistical Office (KSH), which was in transition as well, did not provide a sufficient base to describe and analyze that. The reasons for this are the change of the macro, micro and company data systems, and the different information management within companies. The statistical data system was in transition because of introducing new economic, business and the international standards. Collecting and processing data that took place with significant delay due to the uncertainties caused by the significant changes of the economy and businesses. New entrants in industries turned a deaf ear to providing information of all sorts, thus inducing an aggressive competition. The industry associations tried to find their own places and roles in the industries dominated by privately owned companies. All company information was declared as strategic, and at the beginning of the 1990s, almost all served internal company objectives. It was a common phenomenon to withhold the public data required by Public Accountancy Law concerning company operation. Meanwhile, the systems and registers of accountancy and finances changed a great deal.

Table 5.1 Criteria for Industry Selection

Criteria	Matching industries
Traditionally export-oriented. Considerable exports for several years according to the Hungarian Statistical Office data.	Pharmaceutical, poultry, iron and steel, textile, vegetables and fruits, plastic, aluminium
Higher export ratio in the Hungarian exports than that of the Hungarian economy according to United Nations statistics in the world trade	pharmaciutical, poultry, iron and steel, textile, processed vegetables and fruits, plastic, aluminium
Keen import competition	Pharmaceutical, dairy, textile, plastic processing
Long traditions and/or social usefulness	Poultry, pharmaceutical, textile, vegetabbes adn fruits, dairy, aluminium, iron and steel, tourism
Hungarian analysis had considered them as competitive	Tourism, car and car components
Strong local competition	Dairy

In the industry case studies, I took products as starting-point to define the industries. In the first round, the research project considered those companies competitive which significantly contribute to the exports of the Hungarian economy. When choosing the industries, the starting-point was the export statistics of groups of products basically. On the one hand, the KSH statistics (according to HS (Harmonized System) and SITC (Standard International Trade Classification) codes) of groups of products provided a

base. On the other hand, the yearbooks of the UN (United Nations) on the trade statistics were employed. Out of the considerably insufficient export statistics of the UN about Hungary, I tried to filter the groups of products which, based on the findings, have a greater share in the world trade than the Hungarian economy.

Next to the export statistics other considerations were also measured in selecting industries (see Table 5.1.). These considerations came from the numbers of the advisory committee of the research project. The following considerations were of great importance availability of data and information, access to the dominant companies, and senior above Table 5.1 shows the emphasis was on the exports. The export ratios of the selected industries are shown in the Table 5.2.

Table 5.2. Analyzed industries in exports statistics

Industries	1992	1993	1994	1995
Aluminium (10)	2.36%	4.22%	4.57%	5.31%
Pharmaceutical (3)	1.92%	2.41%	2.25%	1.93%
Car and car components (5)	4.85%	6.06%	4.90%	4.94%
Plastic materials (4)	3.05%	2.99%	3.05%	3.52%
Plastic processed (7)	0.98%	1.07%	1.30%	1.52%
Clothes (16)	10.24%	6.72%	8.45%	7.30%
Textiles (12)	1.54%	1.44%	1.52%	1.34%
Iron and steel (12)	4.39%	5.47%	5.05%	4.90%
Poultry (4)	3.15%	3.55%	3.47%	3.14%
Dairy (1)	0.25%	0.30%	0.22%	0.21%
Vegetables and fruits(16)	3.86%	4.47%	4.53%	3.72%
Total	36.58%	38.70%	39.30%	37.83%
Exports. million HUF	843 566	819 915	1 128 708	1 621 991
Tourism. gross income	98456	110312	151430	219795
as % of exports	11.67%	13.45%	13.42%	13.55%
Tourism. net income	45883	41351	52734	87854
Tourism. net income as % of exports	5.44%	5.04%	4.67%	5.42%

Notes: the table comprises the product groups worth more than 1 billion HUF. according to 4 digit HS codes. Next to the name of industries there are the number of product groups.

Source: Hungarian Statistical Office foreign trade statistics books, several years

I have mentioned several times that the case studies were made with a dual purpose. On the one hand, their important assignment was to explore and describe national and international tendencies in the selected industry. The other assignment, based on this, was to discover the causes of success/failure by applying Porter's models and to outline the progress of each industry.

In accordance with these purposes, I prepared the case study structure as shown in Table 5.3. The number of pages of the case studies was between 50-120. As it is seen in the Table, the main aims of points 1, 2, 3 were to define the industry. The purpose of point 4 was to describe the national traditions of the industry and map the characteristics of the transitional period. Points 5, 6 and 7 served to examine competitiveness. Point 8 served

the purpose of outlining the tendencies based on the statements of the researcher carrying out the case study.

Table 5.3 Structure of the case studies

<p>1.) Introduction of the industry (main product groups, its share in the Hungarian exports, in the GDP, in world production and trade, most important exported product groups)</p> <p>2.) Characteristics of the product and its production (product groups and market segments, most important activities in the value chain)</p> <p>3.) Short history of the industry in Hungary (why and how it evolved, the most important changes, starting exports, professional organisations in the industry)</p> <p>4.) International tendencies (changes in products, in technologies and in markets, the most important international competitors, international rules and regulations, international self-regulation)</p> <p>5.) National economic structure of the industry (according to Porter's 5 forces model an evaluation)</p> <p>6.) Sources for international competitiveness of the industry (based on Porter's diamond model giving conclusions on the international competitiveness of the industry)</p> <p>7.) Conclusions (opportunities in the following 3-10 years)</p> <p>8.) Appendices</p> <p>9.) References</p>
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Source: Czakó (1996)

The common structure also served the purpose of providing a common ground to compare and analyze the case studies of the different industries. The structure of the case studies provided an opportunity for explaining factors in the case studies that are not or not extensively considered in Porter's models. The structure gave an opportunity to expose the characteristics of the Hungarian transition period. Retrospectively, we must consider this approach to be appropriate. The work of O'Shaughnessy (1996) may be considered to be a verification of the appropriateness of the structure of the case studies established in the autumn of 1995. It blames Porter's (1990) international competitiveness research projects for neglecting the roles of cultural factors, historical approach, and political will. Even if we did not manage to employ each of the considerations with appropriate thoroughness, we must state, without doubt, that our aim was to do it. This way we did not apply Porter's models mechanically.

The structure of the case studies was to show what the fundamental changes took place and how the companies of that industry managed to adjust to these changes. It was also to show the factors that should we paid more attention to for the sake of the future success. By this approach, I tried to gain a better understanding on what economic and other factors determine the exports as one phenomenon of international competitiveness.

The validity of the case studies was assured by workshops. In each workshop, the participants emphasized that it was very important in itself that a comprehensive description was prepared about the industry. It was mentioned that the descriptions are correct, and they correctly outline the changes of the examined period. The companies and

the government used the case studies. Industry case studies were the most popular among the working papers of the research program. The government used these studies in its EU derogation project that started at the same time when this research completed.

5.3 Lessons of the case studies

This chapter primarily summarizes the most important findings of the research of the competitiveness of individual industries based on the case studies. When summarizing the findings of the research, the main purpose is to determine what changes took place in the first half of the 1990s, and what adjustments these changes caused in the companies of the industries. In this chapter, I relied on the following case studies prepared for the research: Antalóczy (1997), Barta-Poszmik (1997), Cseh (1997), Dévai-Petruska (1996), Lakner-Sass (1997), Legeza (1996), Lengyel (1997), Némethné-Németh (1996), Orbánné (1996), Szabó (1996).

During the research period, the economic structure of the examined industries significantly changed. The industry factors influencing the behavior of the companies remarkably changed. In what follows, based on Porter 1980 and 1985, I will emphasize the factors, which fundamentally determined or influenced the behavior of the companies in the given industries. On the basis of this, I will define what we closely mean by the competitiveness of the industries. I will also name the factors the companies of an industry had or have had to adjust to.

In the dairy industry, competitiveness did not and has not meant competitiveness prominently appearing in the exports data. We find reasons for this in the special characteristics of the dairy industry. Three factors played significant roles in the economic structure of the industry influencing the strategies and behavior of the companies in the dairy industry. They are the entry of new competitors as a result of foreign direct investment, the fierce national competition, and the marketing channels (esp. retailing) in transition. The events of the first half of the 1990s gave us an example of how the fierce national competition stimulated the competitors to meet the demands of the buyers and customers with an ever increasing standard, and what a significant role foreign direct investments played in that. In the dairy industry, competitiveness meant the adaptability to the fierce national competition and considerable adjustment to the expectations of the consumers.

In the first half of the 1990s, the poultry industry and fruits and vegetables industries managed to keep their previous positions in the Hungarian exports. On the other hand, there were no significant foreign direct investments in either industry. Consequently, we interpreted competitiveness as an ability to maintain exports.

Both industries were greatly concerned by the shrinking markets. In the poultry industry, we need to emphasize the role of the new owners and the fierce national competition. The fierce national competition was significantly induced by over capacities and the postponement of their rationalizations. In the fruits and vegetables industries, all participants were influenced by the remarkable ownership uncertainties of the agricultural

land. The position of the farmers is further corrupted by the fact that, as many small sellers, they face the more and more concentrated retail trade of increasing standards.

Both industries possess significant and favorable factor endowments to maintain their exports in the future. In the coming years, however, the present expertise may prove to be insufficient to exploit the factor endowments. Increasing economies of scale is the next step for the dominant competitors to be internationally competitive. This must be done in the processing in the poultry industry, in production, selling, and food processing the fruit and vegetable industries. Tourism has excellent opportunities due to the location and endowments of our country. The chances of increasing the incomes of tourism by increasing the numbers of tourist are becoming more and more limited. This is why we examine factors which can extend the basis for revenue increase. Improving domestic and upgrading services tourism in the whole industry are of the same significance. Upgrading services requires the development of exclusive tourism and increasing the quality of services.

The pharmaceutical industry, the car and car component manufacturing, the aluminum industry, the iron and steel industry, the plastic raw material and plastic processing industry, and the textile industry are all global and export-oriented industries. It turned out that these global industries provide one third of the Hungarian exports. We, however, knew much less about the global industries and global competition at the closure of the research than now. This fact drew our attention to the phenomenon of globalization. Its characteristics and tendencies significantly determine the chances of our export-oriented industries and companies. Consequently, it is an issue to be examined in spite of the fact that our companies are not global corporations, and they are not the dominant participants in the global industries.

Table 5.4 Shares of global industries in the Hungarian exports, 1992-1995, %

Industries	1992.	1993.	1994.	1995
Alumíniumipari products (10)	2.36	4.22	4.57	5.31
Pharmaceuticales (3)	1.92	2.41	2.25	1.93
Cars and car components (5)	4.85	6.05	4.9	4.94
Plastic raw materials (4)	3.05	2.99	3.05	3.52
Plastic processed (7)	0.98	1.07	1.3	1.52
Clothing (16)	10.24	6.72	8.45	7.3
Textile (12)	1.54	1.44	1.52	1.34
Iron and steel (12)	4.39	5.47	5.05	4.9
Total	29.33	30.37	31.09	30.76

Notes: The table compares the products groups with more than 1 billion HUF according to 4 digit HS Codes. Next to the name of each product group, the figure denotes the number of belonging product groups.

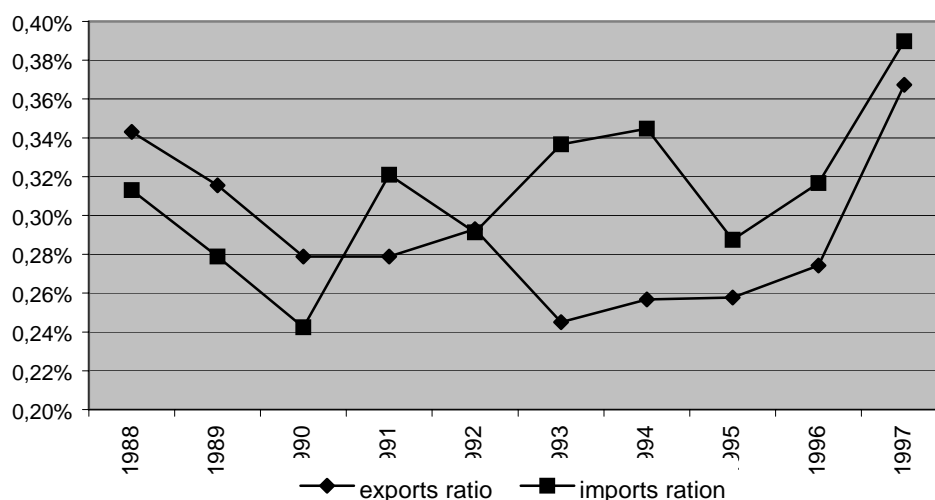
Source: Hungarian Statistical Office (KSH). Foreign Trade Statistics

In our global industries, we can interpret the first half of the 1990s as a re-integration process into the world economy. The emphasis fell on integration into the world economy when examining the factors of competitiveness. The companies managed re-integration into the processes of world economy and their management had a significant role in

successful adjustment. The government did not give remarkable support either by provisions of economic policy or by economic diplomacy. We must consider integration as a fact, a well-done job in the industries. This has a very important consequence. In the next 3-10 years similar cataclysmic changes cannot be expected in the industries, and this is true for joining the EU as well.

Let us take a look at the changes of competitiveness based on exports and imports of the Hungarian economy in the world trade (see Figure 5.4.). We can see that regarding both the Hungarian economy regained the same position it had in 1988 measured by its share in the exports and imports in the world trade. The Figure 5.4 also reveals that the period of case studies prepared at the end of 1996 and at the beginning of 1997 covered the years of 'low-altitude flying' in the exports. It was a period, on the other hand, when the import of products was soaring.

Figure 5.4 Shares of the Hungarian exports and imports in the world trade, 1988-1997



In general competitiveness of a particular industry meant the abilities of its companies to change and adjust. Forces of changes and benchmarks of adjustment differed industry by industry and we took the characteristics of the industries and their economic structures into consideration. By doing this, our aim was to draw attention to the fact that both the companies and government policy have to pay attention the different characteristics of competitiveness at industry level although they will emphasize different factors.

5.3.1 Factors influencing the competitiveness of industries

Relying on Porter's (1990) diamond model and based on the conclusions of the case studies, I give a picture of factors that promoted or impeded the competitiveness of selected industries in the period of 1989-1995. The following statements may be considered as an assessment of the transition economy in that period from the viewpoint of the competitiveness of the analyzed industries.

Factor endowments

- *Human resources:* In adaptation to the changed industry structures skills and expertise of human resources were very important. Where there were not proper management knowledge and techniques and/or government support the existing skills and expertise were not satisfactory. In several industries low motivation and unreliability of workers were also mentioned. The Hungarian wage level is low in comparison with EU countries, and it comes from our low development. Low-level wages are source for competitive advantage in those industries where Hungary as a location offer advantages for foreign enterprises.
- *Capital resources and financing.* In access to capital resources the main problem is the low level of profitability and it is closely connected to the low efficiency of operations and the financing costs. This is serious disadvantage in financing R&D projects. Access to capital is a problem for small and medium size enterprises. Venture capital could help medium size enterprises. Small and medium size enterprises also have problems in financing their export.
- *Technology.* Technological level of industries is satisfactory due to the development projects in the 1980s. The available technology is medium category by international standards. Renewal and development of technology is prevented by the lack of financial resources. In development of technology applying computer technology were frequently mentioned.
- *R&D* The institutions of the national R&D has been confused and the government role decreased considerably. Enterprise R&D is mainly with big players. Subsidiaries of multinationals are far ahead of the Hungarian owned enterprises and in global industries R&D is with parent companies. Necessity for R&D was frequently mentioned in connection with operations processes and technology.
- *Information.* Lack of information and information management is a disadvantage especially in the national owned enterprises. This lack of information leads to unawareness of international tendencies, customers, markets, competitors, prices and access to financial resources.

Demand factors

- After dramatic decrease in demand at the beginning of the 1990s, national demand is stagnating or there is a slow increase. Enterprises expect considerable increase from the economic growth, but it cannot be considered as realistic.
- In consumer product markets there are well defined segments both at the high and the low end. National consumers appreciate foreign products and services much more than national ones. In low segments black and gray economy and retailing has a significant role. In these segments enterprises suggest that by respecting national taxation laws it is impossible to be competitive with those who do not do that.
- There is only one segment where a demanding national market induced high level of product innovation: the national poultry product line is far ahead of the international expectations.
- Subsidiaries of multinationals as organizational buyers - especially in car components manufacturing and retailing - have very important pull effects on developing products quality and packaging.

Firm strategy, structures and rivalry

- Changes took place in the first half of the 1990s led to reshaping the industry structures: privatization, entry of foreign subsidiaries, new ownership structure, shrinking of markets. The reshaped industry structure provided the basis for repositioning enterprises in the industries.
- Those enterprises that had corporate or competitive strategies and followed them were much more successful than those which did not had clear view on their future. The further development requires more sophisticated management approaches and techniques, as well. In this area there are room for development especially for the national owned enterprises. In most cases lack of these knowledge prevent to employ excellent natural endowments.
- Keen competition is due to the import liberalization, collapse of COMECON markets, new entrants and decrease in national consumption. Hungarian owned enterprises expect less competition from a demand increase, and less force for continuous adaptation. It is not widely shared by them that the competition itself is the inherent characteristic of the market economy that should be taken into consideration both in strategies and operations.
- Keen national competition is associated with incorrect behavior. This may result in a very few cooperation both at horizontal and vertical relations. This lead to a lower level efficiency especially in consumer markets, where retail chains growing.
- The prestige of industries preferred in the area of “socialism” has decreased considerably, and these industries produce the same ration of export that they did and attracted foreign direct investments as well.
- Foreign direct investments had a considerable push effect both on competitors and suppliers. However there are as much positive as much negative argumentation on their role in the Hungarian economy. The main reason for that is that Hungarian government noticed impartial for the sake of foreign investors in privatization deals, and new entrants were aggressive competitors and more effective than the national owned enterprises.

Related and supporting industries

- There is not much trace of clusters in the analyzed industries. The previous clusters are ceased to exist and they are not formed again. Forming cluster is not present or enterprises do not like to speak about that.

Government

- The role of government was judged as negative in every industries. The main reason for that is that the Hungarian government do not prevent Hungarian enterprises as much as those developed countries where the eloquent Hungarian enterprises enter the market.
- Expected supports are industry neutral measures and well known in the international practice. The following were mentioned: supporting small and medium sized enterprises in access capital and export markets, supporting technology change and development by credit guarantees and financial means, supporting R&D, making steps for information systems to reduces transactional costs, supporting management training, and more transparent and stable regulation.

Chance

- The only chance was mention is the recreating the regional connections with Central and Eastern European countries. Hungarian enterprises are well prepared for that, however these markets are still risky. Joining the European Unions is not a big chance for enlarging opportunities. It is considered as an extra factor that heat up the national rivalry.

Based on Porter's (1990) diamond model, the above factors gave an overview on determinants of national competitiveness in competitive Hungarian industries. This way we pointed out the factors in the Hungarian economy determining the international competitiveness of companies. When starting the research, as explained in Chapter 5.2, competitiveness was understood in broader terms at an industry level than the ability to export and outward foreign direct investment. The case studies gave a picture of the changes in the industries in 1989-1995 and they pointed out the factors which determined the competitiveness of the companies in the industries but they did not give a picture of how the competitiveness of each industry contributed to the competitiveness of the national economy.

5.3.2 Interpretation of competitiveness

When starting the 'In Global Competition research program' we defined competitiveness for the sake of the research. As a result of several arguments, it is a definition at the national economy level. I stated it in Chapter 2. I will briefly repeat what I said earlier since this chapter will expound on the definition.

According to Scott-Lodge (1985 pp.14-15.), "national competitiveness refers to a nation state's ability to produce, distribute and service goods in the international economy in competition with goods and services produced in other countries, and to do so in a way that earns a rising standard of living. (.....) To be competitive as a country means to be able to employ national resources, notably the nation's labor force, in such a way as to earn a rising level of real income through specialization and trade in the world economy." From this respect company is competitive what it contributes to its fulfillment. To do so a company should be able to operate and change that is:

- (i) By transforming the available resources it earns the greatest profit possible or at least makes an average industry profit while keeping the social values.
- (ii) It is able to perceive and adjust to the changes in the internal and external environments of the company in order to maintain a profit level that may make long-lasting operation possible for the company.

Main condition of competitiveness at company level is the ability to meet better quality, time and cost criteria than the rivals. Main condition of competitiveness at the national level is to having the environment to facilitate the companies to meet these criteria (Chikán, 1995).

The above approach is based on business and management studies. This is a normative problem-oriented approach. We used an inductive approach and reasoning in the research program and the research was contextual and comprehensive. Our aim was to map all the

factors influencing company competitiveness by giving descriptions as well (see Chikán, 1996 and 1997a). We had a situation-oriented approach and all along, we focused on proposals for the business community and the government.

The above definition of competitiveness defined competitiveness at national economy and company level. It did not try to link competitiveness at the national level with competitiveness at company or industry levels. The research projects we knew in the middle of 1990s did not try to do this either, since their aims were different. In the workshops on of the studies during the research program this link was missed. Main arguments did not question the existence of the empirical research projects. It was, however, not clear what the program as a whole was all about, and what its proposals aimed at. An understanding was reached on interpretation competitiveness at four different levels. These are the national level, the levels of products, companies, and industries. The logic of this interpretation was that companies compete with each other first and foremost via products. The companies compete with each other within an industry, which means they firstly have to meet the requirements of the industry. Putting these levels next to one another and presenting them as a system tailed. On the grounds of the studies and workshops of the research program, I summarized the levels and conditions of competitiveness in the following Table. I know what I have done is risky since there are different levels and approaches. The Table below may give a subtler picture of competitiveness together with Porter's diamond model (1990). The levels and factors in the Table seemed to be suited to give more detailed view on the competitiveness of the industries at national and international levels, based on the industry case studies: In addition to Porter's works, I relied on the following works to prepare the Table: Chikán (1997b), Frances (1992), Grant (1998), Johnson-Scholes (1999), Kay (1993), Milgrom-Roberts (1992), Penrose (1996), Rumelt-Schendel-Teece (1991), and Wernerfelt (1984).

I presented four levels of competitiveness in the Table. The factors of competitiveness contain (i) conditions for long-lasting effective operations, (ii) main stakeholders and their takes, and (iii) main risk takers. Under the title of 'conditions of long-lasting effective operations', I listed the conditions of successful operations at the different levels. We will see that effective operations at each level. Under the title of the 'main stakeholders and their stakes', I list the groups with their stakes that are able to influence long-lasting effective operations the most. The column of 'main risk takers' emphasizes those who take the greatest risks at their level of competitiveness. We need to point out here that the main risk takers do not necessarily coincide with those making the decisions. The third column of the Table 'Points of reference' refers to the fact that competitiveness is a relative category. This column points out the benchmarks we compare the advantages with at each level of competitiveness.

Table 5.5 Levels and factors of competitiveness

Levels	Factors of competitiveness			Points of reference
	<i>Contitions for long-lasting effective operations</i>	<i>Main stakeholders and their stakes</i>	<i>Main risk takers</i>	
Products or services	Knowledge of consumers` needs and infenency their buying decisions. Product choracteristics. Costs be less than price	Consumer: value. Companies: sales revenner	Companies: profit.	Products of national companies, export markets and import goods.
Company	Profitable operations. Ability for renewal.	Companies: cash flow. Management: prestige, income, ownership rights. Employees: income, job, working conditions and climate.	Owhers: return on invested capital, cash flow.	National companies. International companies.
Industry	Demand: competitive products. Technological renewal. Mastering core activities in the value chain.	Employees: jobs. Suppliers: market. Buyers: products and services	Companies: survival and growth.	Foreign industries
National economy	Long run effective resource utilization and renewal	Citizens: fair income distributions and rasing living standards. Industries: supporting national operations. Governments: macroecono mic stability and growth.	Government: stay in power.	Previous achievements. Similary developed countries or regions.

The level of products or services

The first level of competitiveness is that of products or services. By products, we mean the things and performances which companies offer to their customers in the market. So, the category we use for products include both products and services. Competitiveness is decided at the level of products. At this level the condition of staying in the market and having a long-lasting effective operations is to meet customers need. The products should be able to influence the decisions of the customers via their qualities. The price of the products should exceed the expenses of their production.

Main stakeholders at this level are the consumers, who expect to gain value and usefulness form the product, and the company that receives sales via selling their products.

The company takes the greatest risk by investing into product development, production, and marketing. It does all this in hope of profit. In this case, profit simply means that sales exceed the expenses of the company.

Points of reference at this level are with the 'In comparison with?', products of national companies, the export markets and the import products.

Competitiveness at company level

By company, we mean an enterprise with legal entity. In national competitiveness, the companies with high exports and outward foreign direct investment have a significant role. The conditions of effective operations are the ability to change and make a profit. Making a profit is the key of the long-lasting existence of a company. The ability to change means the ability to adjust constantly to the changing environment. In addition to the adjustment to the changes in the product markets, in broad terms it also requires the adjustment to the conditions of the environment. Main segments of environment are the political, macro-economic, technological and social changes.

There are three major stakeholders: the company as a whole, the management, and the employees. In the case of the company, its existence as an operating system is primary. The most important factor here is the cash flow, which provides the basis for the ability to change. By management, we mean the top management of a company. Prestige, salary, and ownership rights are the motivating factors for them. These are closely linked to the company and its success. In the case of the employees, we mention the salary, the job, and the working conditions and climate. Job, working conditions and climate are of the same importance as the salary in motivation of the employees.

In the case of competitiveness at company level, the owners take the greatest risks, who take financial risks via capital investment in hope of a profit.

Competitiveness at company level is measured against national and international companies. The separation the national and the international companies is determined by the premises of the mother company.

The industry level

Based on Porter (1980) by an industry, we mean a group of companies, which produce products that are close substitutes of each other. As a result, this interpretation of an industry does not correspond with the statistical listing of companies in the national economy. Industries can operate and exist long-term when there is demand for their products and they are able to upgrade their technologies.

At the industry level, the most important stakeholders are the employees of the industry. They are linked to the industry via their workplace. Suppliers and buyers have an economic interest in the industry.

At the industry level, the companies take the greatest risks. They are bounded to an industry since it gives them a chance to survive and grow.

We assess competitiveness in comparison with foreign companies in the most important foreign markets of the given industry. If an industry is global, then the practice of the leading companies of the industry is also a basis for comparison.

Competitiveness based on business and management studies are at home at these three levels in analysis and giving scientific explanations. We must, however, point out that there is a growing need to tinge deeper our knowledge in these what I have mentioned fields as a result of globalization, the tendency to open national economies.

Competitiveness at the national level

The approach of competitiveness at the national economy level based on business and management studies come to a 'marshy land' as I referred to this in explaining the model and findings of Porter's (1990) research. We can outline the following at this level balancing between the approach of economics and business and management studies.

Competitiveness at national level means that a national economy is effective in long-term when it is able to exploit the available factors efficiently, and can permanently renew them.

At this level the most important stakeholders are the citizens, the industries, and the government. In the framework of economics the expectations of the citizens are a fair income distribution, and the raising of living standards. The industries primarily expect support for national operations. The government is an actor that can do the most for improving competitiveness of the national economy. We want pick out two national economic, they are maintaining the macro-economic stability and creating the conditions for economic growth.

At the national level, the government takes the greatest risk. Supposing there is democracy, the government is tested by the votes of its citizens from time to time in general elections. This, however, exceeds the subjects of economics and business and management studies.

Points of reference in judging competitiveness of national economies are their improvement in comparison with their previous achievements and achievements of with similarly developed countries or regions. This is an area where especially the international economics have results. Comparing achievements at this is level can rely on mathematical and statistical analyses the macro-economic data.

Based on the above Table we can answer the question whether a selected industry belongs to an industry portfolio of the economy that is able to meet the world trade efficiency requirements and how it contributed to the change of the competitiveness of the national economy in the meantime?

5.4 Research questions

The research project on industry competitiveness was finished in 1997. My so far results stimulated me to continue my empirical work in three areas: (i) globalization and the characteristics of global companies and industries, (ii) the factors determining international competitiveness in the Hungarian market economy on the grounds of Porter (1990) model, and (iii) the contribution of industries to the competitiveness of the Hungarian economy.

Based on the case studies, I summarized the most important findings of my research on the competitiveness of the industries. When summarizing my findings in chapter 5.3.1, the main idea was to point out the changes in the first half of the 1990s, and the adjustments done by the companies in each industry. One of the greatest changes and challenges for the companies in the Hungarian export-oriented industries was to keep their positions in global industries. Therefore, further research should cover globalization and operations in global industries.

The findings based on Porter (1990) diamond model, gave us a view of the factors that contribute to the international competitiveness of the leading companies in competitive Hungarian industries. The case studies also gave us a view of the factors, which may contribute to their further development. This way, we pointed out the determining factors of the international success of companies in the Hungarian economy. Further research projects starting after closing the privatization may specify the picture and they can show changes that took place in the second half of the 1990s.

Basic hypothesis of the research of the competitiveness at industry level was, that a national economy could prosper when it has several industries, which are able to meet the international efficiency requirements in the world trade in changing international environment. This is why the key issue of the economic strategy of a country is forming and influencing the industry portfolio of the economy. Competitiveness is not only ability; it can be created and renewed. The levels and factors of competitiveness are outlined in the Chapter 5.3.2. Based on them, I will examine how a selected industry can be evaluated from the standpoint of national and international competitiveness.

My first question in going on with my research was which industry I should choose for further research. As a result of several factors, I picked the pharmaceutical industry. It seemed that my research questions could be analyzed and answered in the pharmaceutical industry based on the available public information and data.

In continuing the research, I used the case study method and relied on the developed methodological approach to competitiveness. Due to the changes that took place in the meantime, statistical data and company information were more available.

I made the following hypothesis in the pharmaceutical industry at starting my empirical work:

1. The pharmaceutical industry is a global industry and the Hungarian pharmaceutical industry faced this in its markets during the 1990s. Globalization did not reduce the competitiveness of the Hungarian pharmaceutical industry.
2. The chances of the export-oriented Hungarian pharmaceutical industry are influenced by the characteristics of the global industries. Global competition and the strategies of global corporations influence the opportunities of the Hungarian pharmaceutical corporations.
3. The pharmaceutical industry belongs to the industry portfolio of the Hungarian economy that promote the competitiveness and the achievements of the economy due to its competitiveness in national and foreign markets. Besides export-orientation, R and D demand industry contributes to the pharmaceutical industry's being a progressive industry in that national economy.

I relied on my own research to prepare the case study of the pharmaceutical industry that set limits to the depth of the analysis. Due to the case study method, there are particular traps, however, the social embeddedness of the pharmaceutical industry such as the role of the government, made it necessary to choose this approach. I present the case study and summarize my findings in Chapter 6.3.

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6. Industrial globalization and its influence on enterprises in global industries in Hungary

This chapter will discuss what globalization means at the level of industry, and what adjustment opportunities and constraints it imposes on the companies in global industries. What makes such a discussion necessary are the facts that the research program entitled *In Global Competition* found that the leading enterprises of the Hungarian economy operate in global industries, and globalization is the most important challenge that we face these days.

Chapter 6 consists of two sections. Section 6.1 analyses globalization at an industry level and possible strategies. It also discusses what globalization means in the pharmaceutical industry. Section 6.2 will address the changes that have taken place in the Hungarian pharmaceutical industry, partly as a result of globalization, and partly due to the development of market economy. The section also touches upon how these changes have affected the competitiveness of the Hungarian pharmaceutical enterprises. Based on the case study presented in Section 6.2, Section 6.3 will sum up the findings of the empirical research carried out for the purposes of this thesis. By way of introduction to the sections, some fundamental concepts related to globalization will be discussed.

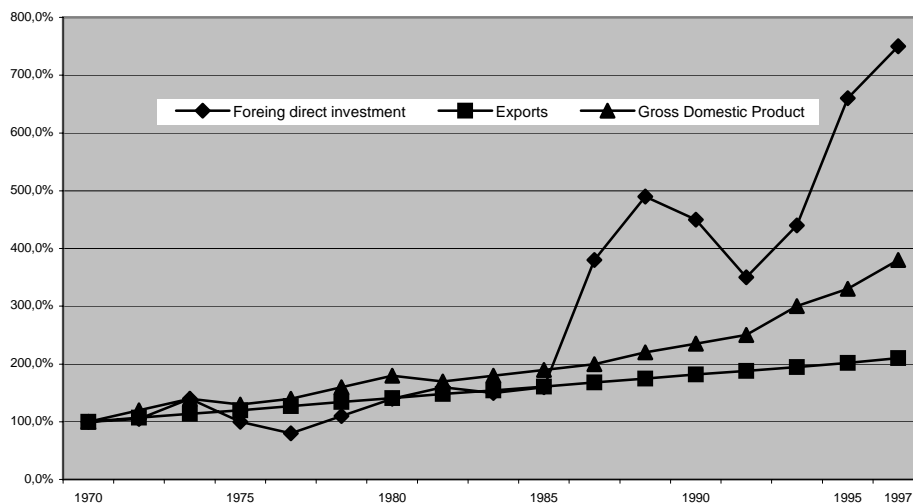
The phenomenon of globalization has been presented in the by business literature since the mid-1980's (see e.g. Porter, 1986, Bartlett-Ghoshal, 1989, and Bartlett-Ghoshal, 1991). We will rely on these approaches as they describe globalization from the point of view of enterprises and provide guidelines for the business sector. The examples and analyses presented are based on mega- or rather gigantic businesses and address the executives of the businesses whose dominance may appear rather discouraging for the future of their smaller competitors as well as consumers. Although the examples may seem discouraging, we believe that the practice presented and analyzed there could be instructive for the enterprises operating in the Hungarian market. As we pointed out earlier one of the greatest challenges for business literature was the operation of global (transnational) enterprises that stretch out the borders of national economies. This is a challenge for economics as well. However, as the issue is complex, we will not go further than formulating questions on some of the elements of the problem when national economies will remain the basis of analysis.

The growth rate of foreign direct investment (FDI) has been on the increase all over the world since the mid-1980s (see Figure. 6.1.1). The curve shows that the growth rate of FDI surpasses that of the exports and GDP. In 1997 in Hungary, over 60% of the GDP was produced by companies owned by foreign investors. In the manufacturing industry the rate was 10-12% higher, and in terms of exports it amounted to 75% (Bayer, 1998 and Éltető-Sass, 1997). The capital of the foreign owned operating in Hungary companies are several times greater that that of the national owned companies. Capital import is essential in the current stage of development of the Hungarian economy.

In order to understand the motifs behind the decisions made by the executives of multinational businesses (the term will be used as a synonym for global and transnational corporations) it is essential to become familiar with the political and economical environment they operate in as well as their information system, mindset, values and

knowledge. These factors fundamentally determine what strategic and operative decisions the executives make.

Figure 6.1.1 Foreign direct investment, exports and GDP in the world economy, 1970-1997, 1970=100%



Source: The Economist, 1998b, based on WTO and UNCTAD data

In the broadest sense of the word, globalization means the opening up of the national economies. According to Moss Kanter-Pittinsky's (1991) "globalization is a process of change in which the world's countries and their economies are increasingly as a function of integrated cross-border economic activity". Integration in Hungary takes place at least at two levels: by integrating Hungary's economy into the EU through accession and by the presence of global enterprises in Hungary on both the supplier and buyer sides as competitors. "Cross-border exchange includes material transfers of people and things and instantaneous communication enabled by emerging information technology". (p.1.) According to an analysis by Rodrik (1997), a process similar to the current globalization was observed at the turn of the century. There are four factors, however, that were not prevalent in the past but play an important part today. These include the application of immigration quotas, which has an effect on the movement of labor; the competition of similar products which results in a considerable intra-industrial trade nowadays; the national governments' function as welfare providers being unavoidable; and the use of information technology.

As the degree of integration increasing, rationalization is becoming crucial in the operation of national economies and global enterprises. In globalization, rationalization includes the strengthening of supranational organizations that make rules for their member states. One of the most important purposes of these rules is to co-ordinate economic activities (especially trade policy) of the countries in a region, thus enhancing the competitiveness of the region compared to non-member states. Such organizations are the EU (Western Europe), the North American Free Trade Area (NAFTA) and the Association of South-East Asian Nations (ASEAN), involving a few countries of the Far East (Blahó et al, ed., 1989). From an economic perspective of globalization, these regions

i.e. the Triad countries constitute the three most important regions, which are determining the moves of multinational enterprises (Ohmae, 1985 and Choi et al 1996). As pointed out in Chapter 3, the European Union is considered to be unique among the regional organizations.

From the perspective of governmental policies, rationalization means that upon accession to a regional organization, any new member states are obliged to adopt and enforce the rules made by the old members. As a first step, regional organizations co-ordinate the trade policies of the member states, thus establishing a free trade area first. As a next step, budgetary and monetary policies are harmonized. In this respect, the greatest progress was made by the European Union. In addition to regional organizations, (Blahó et al, ed., 1989), global enterprises are also strong integrating forces in world economy. Global businesses integrate the activities of their subsidiaries in different countries, co-ordinate and keep control of the development and global spreading of their basic skills. Usually the parent company's headquarters are based in the mother country that is responsible for those functions.

When discussing globalization, we have to determine what *global market* means. It is mostly used as a synonym for the Triad countries. (The term Triad was coined by Ohmae, and 1985) traditionally, the term referred to the United States of America, Japan and the member states of the European Community. Its scope is changing with the expansion of the economic integrations (Choi et al, 1996). Today by global markets we mean North America (NAFTA), Western Europe (EU) and certain countries of the Far East. A global enterprise is expected to be present by national subsidiaries in all of these regions. If we look at what regions most of the global enterprises come from, i.e. what their home countries are based in, we see that the Triad countries are at the top of the list (see Figure. 6.1.1). The Business Week produced a list of the top one thousand companies on the basis of their market value. Out of the thousand, 480 are U.S. based. With 116 global businesses, Japan ranks the second in the list and Great Britain the third with 115 companies. These three countries own 71% of the most valued global enterprises.

Table 6.1.1 Origins of the most valuable corporations of Business Week top 100

Region	Number of global companies	% of total	Number of home base countries	Number of companies among the first 500	% of the 500
Europe, total	350	35,0	16	191	36,6
European Union based	328	32,8	13	178	35,6
Non-EU based	22	2,2	2	13	2,6
North America, total (US and Canada)	511	51,1	2	251	50,2
Australia and Far-East	146	14,6	5	62	12,4

Notes: The list by countries contains 1007 companies since are mentioned in two home base countries.

There are 7 companies that were merged. Companies like that are UNILEVER (United Kingdom and the Netherlands) or ABB (Switzerland and Sweden). Their home countries are as follows (in brackets there are the number of companies): Australia (1), Belgium (2), France (1), The Netherlands (4), United Kingdom (4), Sweden (1), Switzerland (1). Based on Business Week, Global 1000, July, 1998

As outlined in Chapter 2, from the perspective of the countries that have a powerful national market (e.g. the United States), two processes characterize globalization that were less common in the 1970's and 1980's. On the one hand, the companies based in these countries have started to expand abroad intensively by means of foreign direct investment, on the other hand, companies from other countries have entered these countries by means of exports and foreign direct investment. Globalization came to transparent when enterprises that had carried out considerable exports and imports, started their operations in other countries by foreign direct investments. Their objective is to enhance their profit potential and they take a greater risk than by traditional international trade. That is why foreign investors often expect a higher return on their investment, which makes most countries rather irritated.

In terms of quantifiable activities (e.g. exports, imports, foreign direct investments), the rate of globalization has considerably and dynamically increased since the middle of the 1980's. It has become more and more important for the US based enterprises that were relatively modest before. As a result, international trade and FDI became central to mainstream business literature, which started to deal with globalization from a corporate point of view. At first the discipline of corporate strategy formulation, then strategy implementation took a close look at how to manage global corporations. The phenomenon is described and analyzed from the viewpoint of the largest enterprises such as General Electric, a company present in Hungary and featuring the Global 1000 list by Business Week. In order to understand the magnitude of the problem, it must be noted that Hungary's GDP amounted to USD45,000 million in 1997, which is close to the sales by Nestlé, a company present in Hungary as well. We should not lose sight of the fact, though, that a country is not a company and sales are not added values.

6.1. Globalization of industries and enterprise strategies

In line with the introduction to Chapter 6, the structure of Section 6.1 will be as follows: Section 6.1.1 will discuss the features and motifs of globalization at industry level. Section 6.1.2 will review the potential corporate strategies from two perspectives: global companies, as parent companies, and from the perspective of their subsidiaries. Such a review is explained by the fact that the global enterprises make more and more investments in Hungary and it is crucial for the national subsidiaries to know what role they are allocated by the parent company in domestic competition and economy.

Section 6.1.3 reviews globalization from the perspective of the pharmaceutical industry. Section 6.1.3.1 provides an overview of the factors that drive globalization and the corporate strategy of global enterprises. The section will also identify types of strategy in the global industry. As the European Union plays a key part in globalization, Section 6.1.3.2 will review the EU's plans and principles for the pharmaceutical industry. EU intentions concerning the pharmaceutical industry will be addressed because integration into the EU is of high priority for the Hungarian economy. Section 6.1.3.3. presents an overview of the position of the pharmaceutical industry in Hungary and Central and Eastern Europe. The section includes the bibliography used for the introduction to Chapter 6 and Section 6.1.

6.1.1. Global industries

One of the apparent features of globalization is that in certain industries more and more companies have globalized, i.e. more and more companies started cross-border operations. According to Porter (1980/93), the term *global industry* refers to the fact that the position of a company in the major geographical or national markets is defined by its global position. Since markets in global industries expanding geographically and businesses operating cross-border, the companies that are less powerful at a national and international level must keep an eye on the steps of their largest global competitors. In global industry a company's potential position depends on the attitude of the players involved. In practical terms, it means that strategic opportunities in the pharmaceutical industry, e.g. in Hungary depend on how firms are positioned in relation to the leading competitors, and what global, regional and national strategies they apply.

Keen international competition is a typical feature of the global industries. Part of the reason is that major competitors operate in the key markets. The sales of standard products all over the world and high-level international trade are key features of the global industries. Industrial globalization is essentially driven by three factors: technological development, the liberalization of markets and an increasing mobility of factors of production. Porter (1980/93) points out that the factors encouraging global industrial competition are the following:

- Governmental measures (e.g. the predictability of government policies, liberalization of imports, standardization of products and production)
- Cost factors (e.g. economies of scale in size, selection, production and sales)
- Market factors (e.g. standard products and consumer demands)
- Stages of the competition and moves of the competitors

As opposed to the factors outlined above, obstacles to global competition include:

- Economic impediments (e.g. complicated segmentation of the market, high costs of transportation and storage)
- Management obstacles (e.g. different marketing tasks in different countries, rapidly changing technology)
- Institutional impediment (e.g. government regulations, obstacles of attitude or resources)

A study by the OECD (1996b) reveals that four areas could provide a basis for industry globalization: knowledge and R&D (e.g. pharmaceutical industry and computer manufacturing), size (including car manufacturing and entertainment electronics), raw materials (iron and steel production, processing of non-ferrous metals) and manpower (textile industry). The study considers these four factors of global industry to be the main reasons for the global expansion of enterprises. In industries that have become global on the grounds of knowledge and R&D, high foreign direct investment is made. As for international trade, trading between companies and international co-operations in the field of R&D and technology is predominant.

Another feature of global industries is that the largest companies (the largest in terms of sales in absolute value) involved in a particular industry operate across borders and continents. Porter (1986a, p.16) refines his definition of global industries by raising the question what makes an industry global. An industry is considered global if the integration of its activities on a global scale provides a competitive advantage; the leading companies operating in such industries are called global enterprises. These enterprises are open corporations and have their shares registered at the largest stock exchanges. Their goal is to grow, especially in terms of corporate value. In order to achieve this objective, these businesses do the following (Daniels-Radebaugh, 1998):

- When making foreign direct investment, they prefer having the majority or, if possible, 100% of the ownership,
- In order to finance their operations, they rely on international financial markets,
- They organize and co-ordinate their production, resourcing as well as marketing across borders,
- Competitors enter international strategic alliances, ranging from the acquisition of minor ownership to long-term contractual relationships.

As outlined in Chapter 5, the industry approach, especially that of Porter (1980/93), is based on the national economy. This applies to the global industry approach as well (Porter, 1986). However, one of the features of the global enterprises operating in global industries is that they are involved in several industries. Some global enterprises operate in several global industries, at the same time. This is a new development since paper published out and it raises the following questions: what are the criteria for a global industry and what is the unit of analysis global enterprises or global industries could provide a more consistent analysis? From the perspective of corporate strategy, the question is the following: what are the areas and factors that could provide the companies with a competitive advantage? It appears that industry specific features (e.g. those that are due to the specific technology) are only part of the factors. Other important factors include e.g. size, capital expenditure, distribution network and innovation.

6.1.2. Strategic opportunities in the global industries

The multinational enterprises operating in Hungary were driven by a variety of motifs and interests entering the Hungarian market. However, they had one feature in common: the aspiration to gain a competitive edge over their competitors and thus increase profit and value. As part of the research program '*In Global Competition*', one project focused on industry competitiveness and one of the major findings was that the former flagship industries of the Hungarian economy, that continue to produce nearly one third of Hungary's exports, were global industries (see Czakó, 1997 and 1998a). Part of the Hungarian owned companies have turned global by becoming subsidiaries to global enterprises, and part of them operates as a non-global business in a global environment. This makes it necessary to review what opportunities the Hungarian companies have, including all the companies operating in Hungary, from the perspective of globalization, more specifically, the global industries. First, the conceptual framework outlined in Figure 6.1.2 will be discussed (Porter, 1986).

Porter's conceptual framework (Porter, 1986b) takes the segments scope and the geographic scopes starting points. The segments scope may be many, that is the company may compete in many markets and alternatively, the number of market segments served may be limited. Selection of geographical markets is the geographic scope dimension. Global strategy includes the markets of the Triad states, and country-centered strategy includes a limited number of countries. Long time has passed since the conceptual framework was formulated, which enables us to add to the geographical focus a regional strategy potential which is becoming a more and more feasible option for the EU.

Two of the strategy types in Porter's conceptual framework (Porter, 1986) the global cost leadership or differentiation, and the global segmentation (see the two cells on the left-hand side of Figure. 6.1.2.) are primarily applied by global enterprises or national subsidiaries of global enterprises. These strategy options are based on the strategic advantages of general strategies in the global markets. In the Hungarian privatization global segmentation could be feasible in most of the cases. This reasoning is supported by the fact that the majority of the Hungarian enterprises were large in size to serve only the Hungarian market and faced with a considerable shortage of capital and management skills to go international in the 1990s. This made it difficult for them to retain their former product portfolio and market segments and forced them to focus it. The successful privatization cases show that most of the companies were forced to narrow down and specialize their product and market portfolio, and use the channels of the parent company in entering the global markets. A typical example is the ALCOA-Köfém is acquisition by ALCOA (Aluminium Company of America) (Czakó, 1998 c).

Figure. 6.1.2 Strategic alternatives in a global industry

Segment Scope		
Many Segments	Global Cost Leadership or Differentiation	Protected Markets
Few Segments	Global segmentation	National Responsiveness
	<i>Global Strategy</i>	<i>Country-Centered Strategy</i>
	<i>Geographic Scope</i>	

Source: Porter, 1986, p.46

The two cells on the right-hand side show the strategic options, which provide an excellent opportunity for enterprises that are not owned by a global enterprise. Focusing on the national markets is a feasible alternative for medium and large Hungarian enterprises alike. Focusing on protected markets can be a viable alternative for those Hungarian companies that are operated and maintained for social and national economic reasons. Nevertheless, rather than using the traditional trade policy measures to protect the market, more sophisticated means must be applied: means which are specific to consumer safety, production procedures and products. Such means are rather common in home countries of the global businesses.

6.1.2.1 Alternative strategies for parent companies

The international and global strategy that a parent company selects is closely related to the configuration of activities, when global enterprises may perform different activities of their value chain in different countries. International businesses also should take strategic decisions along the lines of co-ordination of their activities. Porter defines configuration as a company's decision on how to position its value adding activities and how to disperse them geographically, i.e. how diverse these activities will be at an international level. The term *co-ordination of activities* refers to how like or linked the activities, performed in the different countries are coordinated with each other". Porter points out (1986b, pp. 23-25.) The following alternative strategies are available on these two dimensions.

Figure. 6.1.3 Types of international strategies

Types of International Strategy

Coordination Activities	High	High Foreign Investment with Extensive Coordination Among Subsidiaries	Simple Global Strategy
	Low	Country-Centered Strategy by Multinationals or Domestic Firms Operating in only on Country	Export-Based Strategy with Decentralized Marketing
		<i>Geographically Dispersed</i>	<i>Geographically Concentrated</i>
<i>Configuration of Activities</i>			

Source: Porter, 1998a, p. 28

In terms of co-ordination, the alternatives range from a complete lack of co-ordination to the harmonization of value chain activities in several countries. As for configuration, the operation of a business may be concentrated (one factory in one country) or dispersed (production and sales are performed in a great number of countries). The basic types are as follows:

The bottom left-hand cell shows the case where a parent company decides not to co-ordinate the operation of its foreign subsidiaries, however, its operations are rather dispersed geographically. In such a case, multinational businesses apply a country-focused strategy; alternatively, they concentrate their home businesses in one country where their subsidiaries are dotted around.

If a parent company decides to co-ordinate the activities of its foreign subsidiaries and expand its operations geographically, it is characterized by an extensive co-ordination of the operation of its subsidiaries, that came about as a result of high foreign investments (see the top left-hand side cell in the matrix).

If a parent company decides to co-ordinate the activities of its foreign subsidiaries and its operations are geographically concentrated, then the strategy applied is export-based and the operation is decentralized with along marketing (see the bottom right-hand side cell in the matrix). Adopting a simple global strategy, a company co-ordinates its activities performed in different countries and concentrates its operations geographically. That is to say, it concentrates as many of its activities as possible in one country, thus serving its international markets from there, and keeps control of its foreign subsidiaries by standardizing their activities which should be performed close to the customers.

In light of the above strategy types, Porter (1986, p. 29) maintains that *global strategy* is what “as one in which a firm seeks to gain a competitive advantage from its international presence through either concentrated configuration coordinating among dispersed activities or both”.

Table 6.1.2 Organizational characteristics of the transnational

Organizational Characteristics	Multinational	Global	International	Transnational
Configuration of assets and capabilities	Decentralized and nationally self-sufficient	Centralized and globally scaled	Sources of core competencies centralized, others decentralized	Dispersed, interdependent, and specialized
Role of overseas operations	Sensing and exploiting local opportunities	Implementing parent company strategies	Adapting and leveraging parent company competencies	Differentiated contributions by national units to integrated worldwide operations
Development and diffusion of knowledge	Knowledge developed and retained within each unit	Knowledge developed and retained at the center	Knowledge developed at the center and transferred to overseas units	Knowledge developed jointly and shared worldwide

Source: Bartlett-Ghoshal, 1989. p.65.

Bartlett-Ghoshal (1989) is more specific in defining the term *global enterprises*. In a previous study, Bartlett (1986) discusses how to organize and manage a company's international operations and classifies the options according to the factors influencing global integration and national differentiation. In his study, a great importance is attached to flexible organizations of a network type. Bartlett-Ghoshal (1989) addresses the issue from the perspective of global business management. According to geographic profile, four types of businesses are identified: multinational, global, international and transnational. Their management and organizational features were classified accordingly. The study provides an interpreting of global businesses, which is close to that of Porter (1986b). Global businesses aspire to gain cost benefits by centralizing production at a world level. Transnational businesses represent a new, ideal type of business. Transnational businesses aspire to improve their efficiency in order to gain a competitive edge in the world, and to make their response to local markets and international operations flexible. They regard innovation as a result of organizational learning, with all the employees of the company involved.

Bartlett-Ghoshal (1989) points out that the strategic capabilities of transnational companies are determined by three factors: global competitiveness, multinational flexibility and global learning that involve the entire organization. These three factors are given highest priority in the building and management of transnational businesses. The following Table provides a summary of the organizational features and management tasks for each factor.

Table 6.1.3 Building and Managing the Transnational

Strategic Capability	Organizational Characteristics	Management Tasks
Global competitiveness	Dispersed and interdependent assets and resources	Legitimizing diverse perspectives and capabilities
Multinational flexibility	Differentiated and specialized subsidiary roles	Developing multiple and flexible coordination processes
Worldwide learning	Joint development and worldwide sharing of knowledge	Building shared vision and individual commitment

Source: Bartlett-Ghoshal (1989), p 67.

Bartlett-Ghoshal's (1989) moved Porter's strategy formulation to management. Their four types of global businesses emphasized different features of global business operation and by creating transnational businesses, they presented one feasible option to realize the slogan "Think globally, act locally" in terms of management and organization. They also showed what might be commonplace today, that for a global business to be successful, it has to work as a learning organization.

Table 6.1.4 Characteristics of global, regional and local companies

	Global company	Regional Company	Local Company
Marketing approach	Mass-marketing	Segment-marketing	Sales for one segment
Need for Information	Limited	Periodical	Real-time
Decision making	Mostly centralized	Centralized	Decentralized
Organization	Functional	Functional and teams	Integrated systems
Focus of strategy	Product	Product/market	Opportunities
Direction of global companies	—————→		Marketing: mass customization

Source: Winger-Edelman (1998)

Carrying on with the above reasoning, the Table 6.1.4 summarizes the organizational and management tasks for global, regional and local enterprises. The table demonstrates that global mass production requires very strict and centralized management. The closer a company moves to the local particularities and special consumer needs, and the more value it adds, the more decentralized the decision-making becomes. And this requires a suitable information technology. Depending on size and structure, enterprises may be rather different in terms of strategic management and decision-making. The reason behind is that the businesses have to identify the conditions under which their competitive advantage provides them with a maximum profitability. The bottom line of the Table demonstrates that in the globalization, a new notion is developing, namely *mass customization*, which enables the global enterprises to respond to the local needs in a flexible and economic manner, by means of mass production and mass marketing. Combining them is the greatest challenge for the global enterprises these days.

6.1.2.2 Global parents and their subsidiaries

Another interesting question in terms of global operation is how their foreign subsidiaries contribute to the efficiency of the global corporation. To answer the question, the findings of a case study and a questionnaire (Bartlett-Ghoshal, 1989) will be presented. The roles that a subsidiary may have can be grouped from two perspectives. 1. The strategic importance of the market served by the subsidiaries for the parent company. 2. The local resources and capabilities of the subsidiary that may be crucial for the parent company. The matrix in Figure 6.4 identifies the various types of national subsidiaries.

'*Dark Hors*' includes subsidiaries that operate in strategic markets to the parent company. In such cases, it is critical for the parent company to be present in those markets. The group mostly included subsidiaries operating in the markets in Japan. These subsidiaries are responsible to gather information on growth and expansion opportunities. Their major goal is to pave the way for progress, either by entering strategic partnership with the local businesses or by concentrating on one single product range or buyer segment.

Figure. 6.1.4 Generic roles of national organizations

Strategic Importance of Local Environment	High	Black Hors	Strategic Leader
	Low	Implementer	Contributor
		Low	High
		Level of Local Resources and Capabilities	

Source: Bartlett-Ghoshal, 1989, p. 106

'*Strategic leader*' includes foreign subsidiaries whose markets, resources, capabilities and opportunities are crucial for the entire corporations. These subsidiaries are expected to be creative and thus generate resources and capabilities transferable to other subsidiaries. A typical example was the privatization of the Hungarian Tungsram Rt. by General Electric, which made Tungsram a leading player in the manufacture of lighting equipments in Europe.

'*Contributor*' includes foreign subsidiaries that, similarly to the implementers, operate in markets that are not strategic to the parent company at large; however, they help it have access to resources, business capabilities and opportunities that may be shared with other subsidiaries as well. In order to benefit from those resources, capabilities and opportunities, creativity is a high priority. Brand names that were introduced in the Eastern European markets, connections and local knowledge could be typical examples in Hungary.

'*Implementer*' includes foreign subsidiaries whose markets are not large enough to be strategic to the company at large, and the same applies to their resources and business capabilities. This group mostly includes subsidiaries operating in developing countries and small European countries. These subsidiaries usually do not have access to information

that is key for the company at large, and they do not have an overview and control over the resources that are critical to the company. Their role is to deliver added value (sales revenue and profit) to the company and thus generate resources to enable the company's strategy and innovation processes. Efficiency is a major expectation towards them. They most often operate in form of a limited company.

In Hungary, the majority of subsidiaries to multinational companies would probably qualify as implementers. Out of the 200 largest companies in Hungary that listed on the Top200 on list by *Figyelő*, a Hungarian economic weekly, 19 were analyzed by Bayer-Czakó (1999). In 1997, those 19 subsidiaries produced 25.3% of the total exports of Hungary and employed 12.5% of all the employees in Hungary. Their parent companies are global companies and 15 of the subsidiaries operate in the form of a limited company. The overwhelming majority of the local executives control only operational functions and their main responsibility is to increase the value added. With a minimum of 0.17% and a maximum of 4.68%, the Hungarian subsidiaries generated 0.7% of the revenue of the parent company, on average. Our hypothesis is that the Hungarian subsidiaries of global pharmaceutical companies can be classified as implementers.

In subsidiaries of the *implementer* type, the management is responsible to increase the value added and thus make profits. Several major issues like sales strategy, strategic guidelines and promotion strategy are centrally determined. The tax and accountancy consultants to be hired are nominated by the parent company. Under the centralized and standardized conditions, the local management is able to concentrate on the particularities of the local market and the local competition. A high degree of centralization and standardization ensures that the same priorities and values be applied across the company all over the world. It is imperative that the structure of the quarterly report presented to the shareholders be consistent. The reliability of these reports is guaranteed by a carefully monitored database. So the success of the local management depends on their efficiency in the day-to-day operation.

6.1.3. Globalization in the pharmaceutical industry

In this section, two topics are discussed from several points of view. On the one hand, the leading companies of global industry and the large companies in the region are briefly introduced, and on the other hand, an answer is given to the issue on what processes referring to globalization have taken place in the Hungarian pharmaceutical industry in the course of the 1990s.

6.1.3.1 Global companies

It should be pointed out that the largest pharmaceutical companies in the world also take high place based on their market value among the most valuable companies in the world. On the Global Top 1000 list compiled by the Business Week, 12 companies, mostly headquartered in the United States, are ranked among the first 100 most valuable

companies. Sales, profit and profitability of these companies are shown in the table below.⁵

Table 6.1.5 Pharmaceutical companies in the Business Week Global top 1000 among the first 100, million USD or %

Company	Country	Market Value 1998	Sales 1997	Profit 1997	Return on sales 1997	Market Value 1999	Sales 1998	Profit 1998	Return on sales 1998
Merck Co.	USA	139845	23637	4614	19.5%	159797	26898	5248	19.5%
Pfizer	USA	133026	12504	2213	17.7%	138370	13544	2627	19.4%
Bristol-Myers Squibb	USA	110791	78508	6093	7.8%	136526	18284	3636	19.9%
Johnson and Johnson	USA	92866	22629	3303	14.6%	124635	23657	3059	12.9%
Rosch Holding	Switz.	98901	12692	2893	22.8%	103719	16164	1879	11.6%
Novartis	Switz.	116174	21088	3524	16.7%	101626	20437	3415	16.7%
Glaxo-Wellcome	GB	96070	13013	3017	23.2%	101535	12799	2867	22.4%
Eli Lilly	USA	67968	8518	-385	-4.5%	78671	9237	2096	22.7%
American Home Products	USA	63415	14196	2043	14.4%	75950	13463	2384	17.7%
Smith Kline Beecham	GB	60888	12711	1760	13.8%	72922	12957	1791	13.8%
Abbott Labs.	USA	57257	11883	2094	17.6%	68703	12478	2333	18.7%
Schering-Plough	USA	61353	6778	1444	21.3%	66346	8077	1756	21.7%

Source: Business Week (1998) July and (1998) July

As it turns out from the above table, there are 8 pharmaceutical US companies, two Swiss and two English companies among the top 100 most valuable corporations. The market price of these companies fluctuated between USD 60-160 billion in 1999. Their sales were between USD 8-27 billion. Their return on sales was between 13-23%. It seems that the American companies are the most influential in the pharmaceutical industry of the world. This and the fact that they can be examined – being listed on stock exchanges requiring a considerable publicity – are the reasons for that the American pharmaceutical companies are frequently mentioned in research studies. Thus, when speaking on the global strategy of pharmaceutical companies the findings refer to US ones.

As the first step, strategic groups identified among the American companies will be discussed. Bogner-Thomas has investigated the strategies of the American pharmaceutical

⁵ One methodological remark on the table should be made: ranking in to the pharmaceutical industry is based on the main profile of the company, however, in the case of a few companies it is known that they are also active in other industries (e.g. Johnson and Johnson). With respect to this, tables like that cannot be used for deeper analysis. This problem is also in correlation with the difficulties in determining the profile of global corporations. This table is suitable for giving a review on the largest players and giving impressions on the size.

companies in the period of 1969-1988 (1996). The investigated interval has been divided into four periods. Their division is based on the years when important events had considerable effect on the pharmaceutical industry of the United States. Strategic groups listed in the table below have been identified. The mentioned examples are either companies ranked on the list compiled by Business Week or such corporations which are dominant players in the Hungarian pharmaceutical industry (e. g. ICN through the privatization of Alkaloida Pharmaceutical Works) or eventually having both features (like Ciba Geigy which continues to be active under the name of Novartis since its merger with Sandoz in 1987).

According to the Table 6.1.7, the strategic groups may be grouped into four types. These are the type of research-oriented companies, that of the generic firms, the type of companies not carrying out any research activity and that of companies specialized in one component diagnostics. It may be seen from the table that companies nowadays considered as global companies were ranked into the strategic group of research companies (with narrow or wide focus) in the middle of the 1980s. Abbott Labs is the only exception to this, which forms a separate strategic group in the opinion of the authors. Among the generic manufacturers, Zenith has been the member of this strategic group since the 1970s. ICN, which is also active in the Central and East European region and is involved in the privatization in Hungary, is ranked into the group of companies performing limited research activity.

These strategic groups, from the Hungarian pharmaceutical companies' point of view, call the attention to the fact that, although the Hungarian companies are smaller sized, but they are facing a choice of fundamental importance on long-term basis. Because of their size, the research orientation with narrow focus, manufacturing of generic products and the operation with limited research activity may be considered.

Based on the sales of pharmaceutical companies resulted from drugs, Schön compiled list on the top 10 companies, counting their share in the world market and their expenditure on R&D in 1990. It should be noted that the table below and the data published by Business Week differ from each other. The reason for this may be that Schön (1999) considered the turnover originating exclusively from the sales of pharmaceutical products, which is especially in the case of Johnson and Johnson: out of the sales of USD 22.6 billion published by Business Week, only USD 8.6 billion resulted from the sales of medicines according to the statement by Schön.

It is worth noting that the market share of the top 10 manufacturers in the world totals to 35.7% of the whole world market estimated to be USD 300 billion. If a glance is cast at R&D expenses, it may be seen that the largest companies spend characteristically more than 10% of their sales on R&D. In the case of companies listed in the table, this figure is 14% on the average.

It is the feature of the pharmaceutical industry that, the international market is fragmented the top 10 manufacturers of the world market cover as little as nearly 36% of the total market which is mainly rooted in the great variety of pharmaceutical products. In addition, it may also be observed that the pharmaceutical companies have a very high market share

in a given therapeutic area. On the market of the original products, this share may also reach 100%. This is due to the original products launched onto the market that ensures a monopolistic position during their patent protection.

Table 6.1.6 Sales and R&D spendings of top ten pharmaceutical companies in the world 1997

Rank	Company	Country	Sales, m USD	market share, %	R&D spending, m USD	R&D as % of sales
1.	Merck	USA	11.3	4.6	1684	11.9
2.	Glaxo Wellcome	GB	10.9	4.5	1882	14.4
3.	Novartis	Switzerland	10.5	4.3	1813	18.6
4.	Bristol-Myers Squibb	USA	9.0	3.7	1200	12.1
5.	Johnson&Johnson	USA	8.6	3.5	1285	16.7
6.	Pfizer	USA	8.3	3.4	1710	6.0
7.	American Home	USA	8.1	3.3	1246	16.0
8.	SmithKline Beecham	GB	7.2	3.0	Na.	na.
9.	Hoechst	Germany	6.9	2.8	1374	17.0
10.	Eli Lilly	USA	6.3	2.6	1382	16.2

Based on Schön (1999)

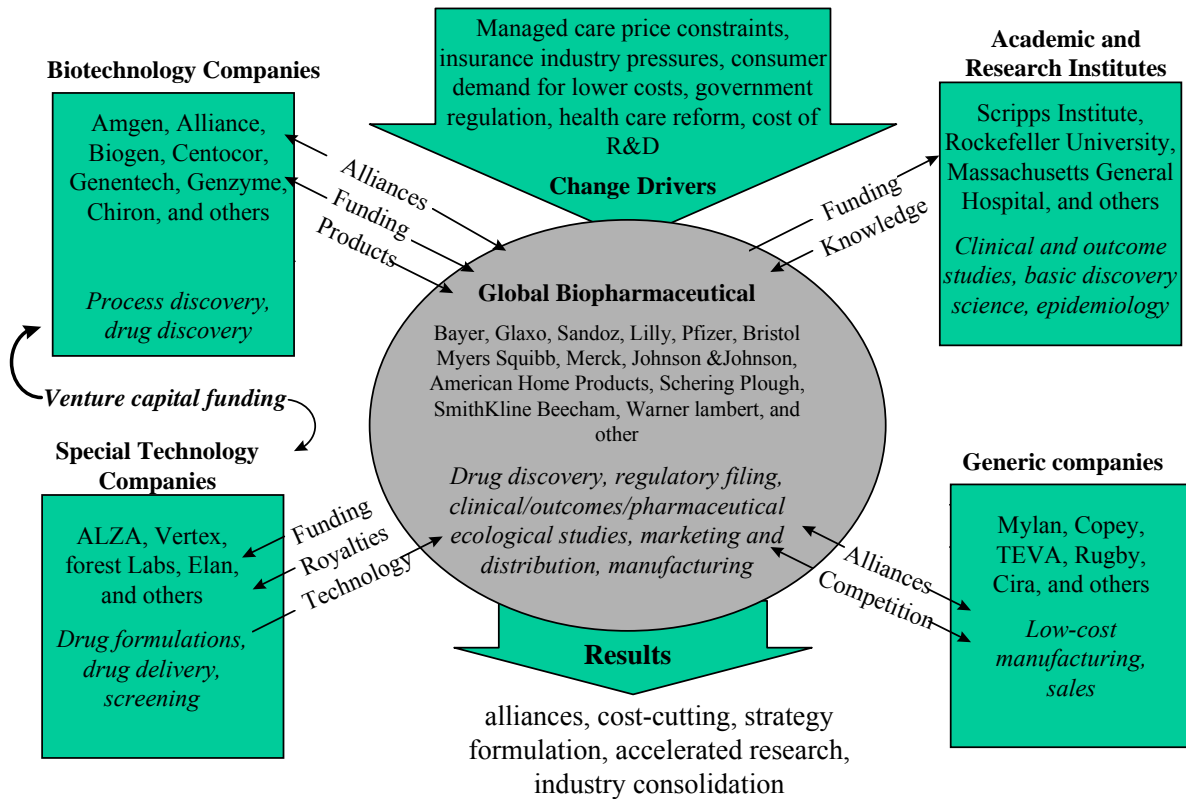
From the above data, it may be concluded that global companies are really focusing on research and the original products. I briefly summarize below what factors determine the development of the industry. I sum up the most important factors influencing on the pharmaceutical industry based on the Wilson-Henry study (1995) who have summarized the most important factors influencing the development of the industry in the book (Want, 1995) dealing with the radical transformation of the industry.

The Wilson-Henry study (1995) divided the pharmaceutical industry into two large groups. These are the groups of research-based companies and generic firms. This grouping is less differentiated than that by Bogner-Thomas (1996), but in its logic it follows the same approach. The *research-oriented companies* tightly co-operate with biotechnological research companies, universities and other research institutions as well as other technological companies. The primary task of the *generic firms* is to manufacture the cheap replication of the products with expired patent protection and to put those onto the market. They point out that generic firm do not develop new products and do not carry out any research to investigate the effect of the products manufactured by them either (pp 232-234). Contrary to this, the *research-oriented pharmaceutical companies* deal not only with the development of the new drugs, but they also carry out a research activity focusing on improving the life quality of the patients through determining the doses to the different treatments. Generally, these companies are large, global corporations. It should be emphasized at this point that this judgment on the research activity of the generic firms is not correct. The basic research is really not typical of these companies, however, the development and especially product development are characteristic. Reformulation of the known active ingredient, investigation on the effects of the new version of the medicine manufactured this way, give product development tasks to the generic firms. This is also

instructive from the Hungarian pharmaceutical companies' point of view, because generic production also requires research activity, in particular in product development.

The most important factors of changes taking place in the pharmaceutical industry are as follows: great expenses of research and development, pressure to lower the cost level and the national governments. The effect of the individual factors is shown in Figure 6.1.5.

Figure 6.1.5. Structure of the biopharmaceutical industry



Source: Wilson-Henry, 1995, p. 233

Table 6.1.7 Strategic groups in the US pharmaceutical market

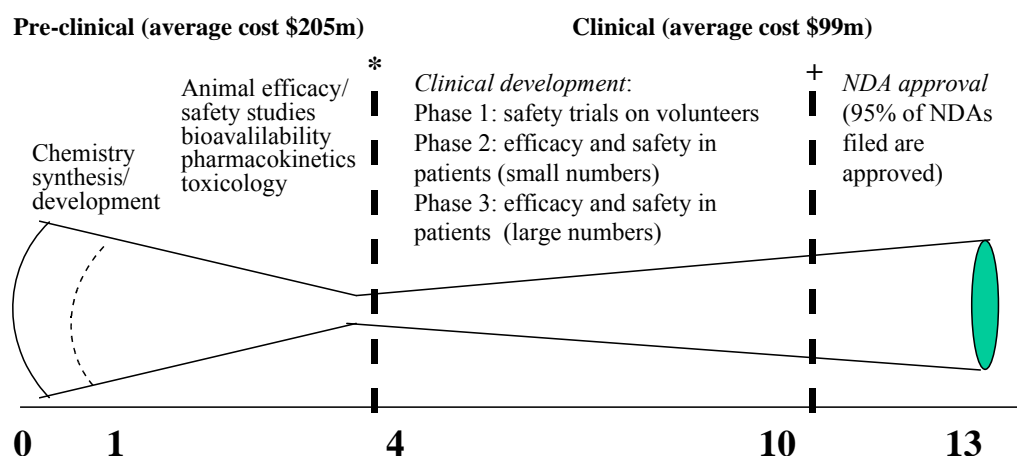
Time-span	Strategic groups and examples of its members				
-1969	Medium size limited research ICN, Marion Labs, Zenith	Medium size moderate research Bristol-Myers, Eli Lilly, Johnson and Johnson, Schering-Plough, Squibb	Broad organic chemistry focus Hoffmann-LaRoche, Merck, Smith Kline and French	Early diversification Pfizer	
1970-1977.	Medium size limited research Bristol-Myers, ICN, Johnson and Johnson, Schering-Plough	Traditionally antibiotics Abbott, Ely Lilly, Squibb	Broad organic chemistry focus Ciba-Geigy, Hoffmann-LaRoche, Merck, Pfizer, Smith Kline and French	Generic-like firms Marion Labs, Zenith	
1978-1980	Medium size limited research Glaxo, Johnson and Johnson, Schering-Plough	Traditionally antibiotics Beecham, Bristol-Myers, Eli Lilly, Pfizer, Squibb, Smith Kline and French	Broad organic chemistry focus Ciba-Geigy, Hoechst, Hoffmann-LaRoche, Merck	Generic-like firms ICN, Marion Labs, Zenith	Heavy patenters Abbott Labs
1981-1984	Lagging research firms ICN, Marion Labs	Medium sized - assertive research Bristol-Myers, Glaxo, Johnson and Johnson, Schering-Plough, Smith Kline and French	Large size-assertive research Beecham, Ciba-Geigy, Ely Lilly, Hoechst, Hoffman-La Roch, Merck, Pfizer, Squibb	Generic firms Zenith	Diagnostics thrust Abbott Labs
1985-	Lagging research firms ICN, Marion Labs	Narrow focus research firms Glaxo, Johnson and Johnson	Broad focus research firms Bristol-Myers Beecham, Ciba-Geigy, Ely Lilly, Hoechst, Hoffman-La Roch, Merck, Pfizer, Squibb	Generic firms Zenith	Diagnostics thrust Abbott Labs

Source: Based on Bagner-Thomas, 1996, p. 142-143

The R&D costs of developing a new medicine in the pharmaceutical industry is estimated USD 350 million. This amount was estimated by The Economist (1998b) to be USD 304 million. The different sources generally indicate the R&D costs between USD 300-400 million. The Figure of The Economist (1998b) shown below divides the process of the development of pharmaceutical products into phases. Considering the time demand of product development, it should also be pointed out that the life cycle of pharmaceutical products is very long that poses special problems in managing the product mix. Wilson-Henry (1995) mentioned the same time demand as The Economist and they both have pointed out that 5000 molecules having no success fall on one patented compound (molecule) in the United States annually. To achieve success in this field, the research-oriented companies strive to co-operate with universities and scientific institutes, biotechnological companies and corporations involved in special technologies. In the framework of the co-operation with the academic world, the pharmaceutical industry supports the institutions with financial funds in performing clinical and efficacy studies as well as basic research activity. The special technological companies have been specialized in developing the individual steps of the drug manufacturing process.

The biotechnological companies gain ground in R&D activity. From the 1970s on, R&D activity based on the so called biotechnology has been gaining ground against the predominance of the earlier chemical researches, and they are more expensive. In the opinion of the authors of several analyses, the considerable increase in R&D expenses is attributed to this change. These companies play an important role in the innovation of the processes and discovering new drugs in the pharmaceutical industry. Because of the considerable expenses and high risks, corporations financed by venture capital are active in this field, with which the large pharmaceutical companies co-operate in the promising phase of development. Companies specialised in genetically engineered technologies are ranked into the group which, in addition to the information technology industry, require the largest venture capital in the United States (The Economist, 1998b).

Figure 6.1.6 Process and costs of drug development



*Investigational new drug application

+ New drug application

The Economist (1998) based on sources: Allen Cato, Cato Holding Company, Joseph Di Masi, Tufts University

Source: The Economics, 1998b. Figures denote the years.

The pressure to lower the cost level also is coming from several outside players. The most important are the national governments, insurance companies and consumers. In parallel with the continuous increase in the share of the health care expenditure on GDP, there is a considerable pressure on the players of the health care to reduce their expenses and the pharmaceutical companies are the most frequent targets of this process. The pressure to reduce the costs has resulted in the expansion of generic products. It is noted that the generic products' gaining ground also is due to the fact that the active ingredients of the fundamental medicines of the widespread diseases has been discovered by the 1980s, their patent protection have expired or are very close to expiry. It may be observed that the index of the products expressed in DOT-days (dose-on-treatment) is on decrease. It shows that the formulations of the active ingredients become more and more effective which is partly attributable to the R&D carried out in this field.

The role of the national governments is a determining factor in whole pharmaceutical industry and it increases globalization just to the same extent as it decreases it. The national governments control the trade of pharmaceutical products on their own markets. There are the marketing authorization, tight price control and the list of reimbursed medicines among their control tools. Being on the list of reimbursed medicines is generally a key factor regarding the market success in countries with a developed health care system, and it is especially important for the pharmaceutical companies in the case of original products.

The above factors led to the consolidation of the pharmaceutical industry in the 1990s. This partly resulted from the acquisition and mergers within the industry, one part of which was horizontal and took place within the industry, while the other part showed a vertical integration (e. g. towards marketing channels).

6.1.3.2. The European Union and the pharmaceutical industry

In November, 1998, the European Union issued a committee document on the single market of pharmaceutical products (EU (1998) (Com98)588 final). The preliminaries to this document were the document (COM(98)718) issued in 1994 according to which the decrease in global competitiveness of the pharmaceutical industry of the EU was one of the most important concerns. In the period elapsed since that time, one of the most important tasks was to create the single market as well as a stable and predictable environment. The stable and predictable environment was to support the protection of the patients' health, rapid entry the market and therapeutic innovation. In formulating of the principles and regulations of the European Union on the pharmaceutical industry, the purpose of creating the single market and that of the encouraging of R&D activity are to improve the competitiveness of pharmaceutical companies, mainly against the American corporations.

The market of pharmaceuticals is one of the most fragmented markets in the EU at national level. The first review on the impacts of the single market was published in July, 1996 (see EU (1996)). According to this, several steps were taken to create the single market of the EU. One of the issues is the question of prices where the most important expectation is to ensure the transparency of price control (89/105/EEC). Only relatively moderate results could be achieved in this issue due to the fact that this field is part of the budget policy of the member

states (see table 6.8 on the tools of price control applied by the national governments). The 1992 directives on the „rational use of medicines” (92/26/EEC, 92/27/EEC, 92/25/EEC) have harmonized the classification of the medicines (prescription drugs, non-prescription drugs), advertising of the drugs, information to be provided for patients, and the pharmaceutical wholesaling.” Regulations on the intellectual property on pharmaceutical products extended patent life for 20 years. This affected the research-oriented manufacturers favorably and handicapped the generic firms. The least steps forward have been taken in the application of the horizontal tools, e.g. in the issues of product liability, trade marks, public procurements and competition policy.

The steps taken to create the single market of the EU pharmaceutical industry have produced results in the following fields: Cross-trader sales of drugs have increased. Foreign direct investment has been very large, mainly from the part of the US companies which especially targeted England and France. There was no change in the number of companies operating in the industry however their size has increased. Productivity has been considerably increased in the pharmaceutical industry. It is to be mentioned among the achievements that the European Medicines Evaluation Agency (EMA) was established in 1995 and the EU member states mutually recognize the authorization system of each other. The Frankfurt Round Table discussions, where the interested parties of their pharmaceutical industry represent the member states, serve the aim of creating the single market of the European Union.

In accordance with creating the single market, the principle of subsidiarity is emphasized in the EU documents. The reason for this is that the pharmaceutical industry is in close connection with the health care system of the given country, whose task is to enforce of the right of its citizens to health, and it is in correlation with the financial capability of the given national economy. Consequently, in addition to the principles and measures serving the standardization, the most important requirement is to enforce the principle on transparency. The reason for this is that “Member States have exclusive responsibility in the field of the health care; they view both the provision of health and its financing as key to social solidarity; and they have to meet public expenditure objective, notably for the purpose of European Monetary Union.” (EU (1998) p 4) According to the documents, it is a highly important aspect that the countries desiring to join should be able to apply the uniform EU principles in such a way that it should not be contrary to their national health care system.

At the end of the 1990s, three steps continue to be held extremely important in the pharmaceutical industry: completion of the single market; increase the attractiveness of the European Union in the field of R&D; improving consumer choices in the medicines of the required quality, safety and efficacy at affordable cost. In connection with the pharmaceutical industry, the latter is especially the field where a considerable chance is given to the use of Internet.

Table 6.1.8 Summary of Pricing and Cost Containment Methods

	United Kingdom	Austria	Belgi-um	Denmark	Finland	France	Greece	The Netherlands	Ireland	Germany	Italy	Portugal	Spain	Switzer-land	Sweden
Price control on ethicals	N	Y	Y	N	N	Y	Y	N	Y	N	Y	Y	Y	N	N
Price control on OTCS	N	Y	Y	N	N	N	Y	N	N	N	N	N	N	N	N
Compulsory pharmaco-economic data	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y
Profit control	Y	N	N	N	N	N	Y	N	N	N	N	N	Y	N	N
Promotional cost control	Y	N	N	N	N	Y	N	N	N	N	N	N	Y	N	N
Reference pricing	N	N	N	Y	N	N	N	Y	Y	Y	N	Y	N	Y	Y
Positive list*	N	Y	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y
Negative list	Y	N	N	N	N	Y	N	Y	N	Y	Y	N	Y	N	Y
Risk sharing	N	N	N	N	N	Y	N	N	N	N	N	N	Y	N	Y
Co-payment	Y	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y	Y
Prescribing Indgets for doctors	Y	N	N	N	N	N	N	N	Y	Y	N	N	Y	N	N
Generic substitution	N	N	N	Y	Y	N	N	Y	N	N	N	N	N	N	N

*Note: Y= applied, N=not applied, * includes lists of medicines „recommended” for reimbursement as well as official positive lists.*

The pharmaceutical industry of the European Union. The pharmaceutical industry of EU provides 40% of the world production nearly 490,000 people are employed here, among them 71,000 are involved in research and development activity. The pharmaceutical industry of the EU has a positive trade balance. The reason for worries on EU competitiveness is pharmaceutical industry is that the increase rate in imports of the EU is higher than that of exports (see Table 6.1.9).

Table 6.1.9 Pharmaceutical exports and imports of EU, 1995-1998

	1995	1996	1997	1998
Export, mEcu/Euro	16.937	18.107	23.205	26.751
Change, %	+9.1	+6.9	+28.2	+15.3
Imports, m Ecu/Euro	8.309	9.590	10.799	12.611
Change, %	+12.0	+15.4	+12.6	+16.8
Trade balance, m Ecu/Euro	8.628	8.517	12.406	14.140

Source: Based on Eurostat (1999) *External and intra-European union Trade Monthly Statistics*, 12.

The trading partners of the EU pharmaceutical industry are among the countries also having developed pharmaceutical industry, such as the United States of America and Switzerland. It means that the intra-industrial trade is at a very high level in this industry. The role of the Central-Eastern European region is a significant in the exports of the European Union, nearly 9% of the EU-exports are delivered to this region. Considering the imports, the situation is highly different from this. The share of 1.6% refers to the fact that imports from this region to the EU are not significant in value from the EU's point of view. The high exports and low imports, however, are resulted in considerable trading surplus for the EU in this region.

Table 6.1.10 The biggest trading partners of the EU, 1998

Country	Export, mEcu/Euro	Shares in exp. %-ában	Import, mEcu/Euro	Shares in imports %-ában	Trade balance, mEcu/Euro
United States	7054	26.4	5507	43.7	+1547
Switzerland	3002	11.2	4613	36.6	-1611
CEEC	2367	8.8	198	1.6	+2169
Japan	1543	5.8	670	5.3	+873

Source: Based on Eurostat (1999) *External and intra-European Union Trade Monthly Statistics*. 12.. CEEC – Countries of Central and Eastern Europe

One of the greatest challenges to the EU's pharmaceutical industry is the in the field of the research and development. Between 1983 and 1992, R&D expenditure has increased with 50%. In 1997, ECU 10 million was spent on research and development. The share of Europe in the development of new products was 19% in 1997, against the 65% 30 years earlier. In the innovation of new active ingredients, the US was with 76%, Japan with 14% ahead of Europe, whose share was 10% in 1995 (EU 1996 and EU 1998).

The industry of the European Union has become of two levels: one group includes a few research-based large corporations; the other group includes several smaller companies. In the case of the research-based companies, it could be observed that their activity was diversified into the direction of manufacturing generic products and paramedical products in the course of the 1990s. On the whole, there was a considerable increase in the competition among the companies manufacturing generic products. Among the wholesalers, a concentration process could be observed. Such large global companies belong to the pharmaceutical industry of the European Union as the English Glaxo-Wellcome or Bayer AG.

6.1.3.3. Pharmaceutical firms of the Central and Eastern Europe and the Hungarian pharmaceutical industry

There are much less information available on the pharmaceutical firms in the Central and Eastern European region than whether on the pharmaceutical companies in the European Union or on the leader corporations of the world. It turned out from the data of the EU that the countries in this region are much more important for the market as an exports than in respect to imports. The data of 1.6% relating to 1998 refers to the fact that the European Union is not the primary target market of the region.

Table 6.1.11 The biggest pharmaceutical companies in the ex-socialist countries, m USD, 1996-97.

Company	Country	Total sales revenue		Pharma sales revenue		Net profit	
		1997	1996	1997	1996	1997	1996
Pliva	Croatia	465	418	221	316	99	84
ICN	the shole region	433	n.a.	355	n.a.	70	n.a.
Lek	Slovenia	328	281	295	227	23	21
Krka	Slovenia	323	311	270	245	32	23
Richter Gedeon	Hungary	279	247	279	247	99	76
Chinoin	Hungary	198	149	164	121	47	39
Bryntsalov/ Ferane	Russia	179	340	179	93	n.a.	n.a.
Leciva	Czech Republic	176	164	176	164	15	10
Slovakofarma	Slovakia	159	148	159	148	12	17
Egis	Hungary	156	165	156	165	34	38

Source: Schön (1999)

The above table includes data on the 10 largest pharmaceutical companies in the ex-socialist countries. Data relating to 1996 and 1997 are given in million USD. There are, three Hungarian pharmaceutical companies – Richter, Chinoin and Egis – on the list. In order to show its scale in the world economy let us see some figures. 10 largest pharmaceutical companies in the region amounted to USD 2.2 billion, which was less than

1% of the estimated world sales and approximately corresponds to the EU exports to the region. The total sales of the top 10 pharmaceutical companies in the region would not be sufficient either, to get among the 10 largest global pharmaceutical companies of the world. Besides, however, it should be noted that these companies – thus the three Hungarian companies in the list – are among the leaders in their own national markets.

In international comparison, Hungary has great traditions in the pharmaceutical industry. This can be explained by the early start and development of the domestic pharmaceutical industry, which was in accordance with the international trends of that time, and later on by their strong position in the Comecon era. The largest Hungarian pharmaceutical companies – Chinoin, Egis and Richter - are among the leading companies of the region.

If the data relating to return on sales (total sales/net profit) are investigated in the table below, it turns out that the return on sales of the Hungarian companies is the highest in the region and these data are far higher than the average. These indices refer to the fact that the Hungarian pharmaceutical companies create the forefront of the region in profitability. Comparing the return on sales to the values calculated by using the data published in Business Week, it turns out that these values also exceed the highest values given in the mentioned weekly. The return on sales data made known in the referred weekly were between 7.8 and 23.2%, disregarding the data of Eli Lilly showing deficit, in 1997. The same data of companies in the region were between 7.0 and 35.0%. This refers to that fact that companies of the region, based on this specific index, show the same performance as global large companies.

Table 6. 1.12 Performance of the biggest companies in the Central and East European region

Company	Total sales revenue		Net profit		Return on sales*	
	1997	1996	1997	1996	1997	1996
ICN	433	n.a.	70	n.a.	16,2%	na
Lek	328	281	23	21	7,0%	7,5%
Richter Gedeon	279	247	99	76	35,5%	30,8%
Krka	323	311	32	23	9,9%	7,4%
Pliva	465	418	99	84	21,3%	20,1%
Bryntsalov/Ferane	179	340	n.a.	n.a.	na	na
Leciva	176	164	15	10	8,5%	6,1%
Chinoin	198	149	47	39	23,7%	26,2%
Slovakofarma	159	148	12	17	7,5%	11,5%
Egis	156	165	34	38	21,8%	23,0%

*Based on Shőn (1999). *Net profit/Total sales revenue.*

If the data of the Hungarian pharmaceutical industry are examined in terms of US Dollar, it turns out that its production is appr. USD 1 billion, while the exports totals to some USD 0.5 billion. In the light of the data of global pharmaceutical companies, these data clearly show that the Hungarian pharmaceutical industry is small in global dimensions. The position of the pharmaceutical industry in the Hungarian economy is shown by the fact that more than 15,000 people are employed here. The reason for my citing these

provoking figures at the end of this chapter is to underline that an industry, which is small on global scale, can be a leading industry in a national economy of small size, for example because its jobs provided. An evaluation exclusively based on figures shows the oppressive side of globalization especially in the case of small national economy. Besides, it warns against investigating exclusively with data expressed in hard currency uprooted those from the facts behind the data. The small size of the Hungarian pharmaceutical companies, in global dimensions draws the attention to necessity of focusing on such a fields where the advantages do not depend on size. Putting in to the language of strategy, the segment (niche) strategies may be successful and in the management and operations and all economic knowledge should be adapted and applied which are also used by the largest players.

Table 6. 1.13 Key figures of the Hungarian pharmaceutical industry in USD and the number of employees, 1989-1998

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
<i>HuFt/USD exchag rates</i>	59.1	63.2	74.81	79	92.04	105.13	125.7	152.6	186.8	214.5
Pharmaceutical production, billions USD	0.87	0.98	0.93	0.72	0.78	0.8	0.81	0.84	0.93	0.93
Pharma export, billions USD	0.35	0.49	0.38	0.37	0.37	0.39	0.41	0.44	0.54	0.53
Pharmaceutical employees, thousands	22.80	23.43	22.69	20.26	18.52	17.64	17.38	15.69	15.18	15.43
Industrial production billions USD	29.06	30.50	28.67	22.77	22.17	23.55	28.01	28.89	31.93	35.03
Industrial exports, billions USD	7.62	7.28	5.14	5.41	5.35	6.41	8.79	10.20	13.48	16.64
Industrial employees, thousands	1356.4	1282.1	1147.6	997.1	673.4	798.2	763.5	735.4	733.5	750.9

Source: Central Statistical Office (KSH) Statistical Year books

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6.2. Factors influencing the competitiveness of the Hungarian pharmaceutical industry in the 1990s

In my thesis dealing with the competitiveness of the industries, I have selected the pharmaceutical industry to be the subject of the empirical analysis. The reason for this is that the pharmaceutical industry could be considered as a flagship industry of the Hungarian economy before the changing the political system. Having completed the privatization, these companies got into private ownership; their stressed importance in the national economy has been reduced. Following the changes in the ownership and due to the characteristics of the pharmaceutical industry, this industry can also be investigated based on public information. My selecting the pharmaceutical industry has also been inspired by Porter (1990) who analyzed, the internationally leading Danish insulin manufacturer, Novo Industri (since that Novo-Nordisk), and a case study has also been made on this company for educational purposes (Enright, 1992, reg. No. 9-389-148).

The form of this chapter of the thesis is case study. The purpose of this case study is to outline the most important trends taken place between 1989-1998, to point out the most important economic, business and management factors having influence on the operation of the pharmaceutical industry as well as to reveal the motives for the competitiveness of the pharmaceutical industry and to give a picture on those. Evaluation of the case study may be found in Chapter 6.3.

When preparing this chapter, I relied on public information. The most important sources of the information were the papers and analysis published in the Hungarian journals and weeklies. Among the data on the pharmaceutical industry, I used the annuals published by the Central Statistical Office and National Health Insurance Fund. Where it was necessary, I also drew in the laws on the report of the Hungarian annual budget as data source. The main source of data for the pharmaceutical industry and pharmaceutical trading companies was the Figyelő Top 200 publication which contains the financial data of the 200 largest domestic companies ranked on the basis of their annual sales and evaluates the annual operation of the first 100 companies. In the case of companies, I also utilized the annual reports of Richter and Egis. I used, furthermore, the paper of Katalin Antalóczy who has evaluated the operation of the pharmaceutical industry in the 1990s in two long-winded studies. One of them was prepared for the “*In global competition*” research program (Antalóczy, 1997), while the other was a study focusing on the privatization of the pharmaceutical industry (Antalóczy, 1999). I also relied on two of my own earlier papers on the pharmaceutical industry (Czakó 1997 and 2000). The first was prepared in the framework a research investigating the relations of the Hungarian pharmaceutical industry to the health care system (consultant Éva Orosz, lead the project of the Market Research Co. Ltd.), while the other was prepared on behalf of the Ministry of Economy to deal with the growth opportunities of Richter Co. Ltd. to (consultant Károly Balaton). I have also reviewed the most important relevant regulations on the industry the source of which was the CD-ROMs of the Collection of Hungarian Laws. In addition to the Hungarian laws, I have also used the EU guidelines mentioned in the previous section, which can also be reached in the Internet (www.europa.eu.int). In the case of companies having their own homepage, the information, too, found there were utilized.

Time horizon of this study embraces the interval between 1989 and 1999. The year of 1989 is considered such a year before changing the political system, which could be deemed the last untroubled year of the earlier operation. The year of 1999 is discussed in connection with the governmental regulations in the first place.

Chapter 6.2 investigates what processes have taken place in the Hungarian pharmaceutical industry in the period between 1990-1998. Chapter 6.2.1 positions the pharmaceutical industry in the Hungarian industry based on the data published by the Central Statistical Office (CSB). The purpose of this investigation is to outline the position of the pharmaceutical industry within the Hungarian industry based on statistical data and to underline the changes, which may be seen from the data, taken place in the pharmaceutical industry. Chapters 6.2.2 and 6.2.3 are a summary on the most important features and frameworks which have an influence, on the operation of the pharmaceutical industry. The Chapter 6.2.2 describes peculiarities of pharmaceutical products. In the Chapter 6.2.3, the principles and practice of the governmental regulations are discussed. My intention is to focus on two aspects here: the fields on regulating the industry and through this the factors influencing the companies' behavior to a great extent as well as the size of the market. Chapter 6.2.4 deals with the changes occurred in the pharmaceutical industry between 1989 and 1998. This Chapter is divided into further for subchapters. At the first, I discuss the market subsequently marketing issues are discussed. The third subchapter deals with the competition within the industry and concentrating on the factors that were driving the competition of the market players in the investigated period, then on analyses on the performance of the domestic manufacturers is following.

6.2.1 Position of the pharmaceutical industry in the Hungarian economy

The pharmaceutical industry is one of the sub-branches of the chemical industry within the industry that is kept record by the CSO under the registration number 2423 from the year of 1993. The data are based on the account taken on the organizations operating with more than 20 employees. The source of the data was the statistical and industry-statistical annuals of the Central Statistical Bureau. In the mirror of the statistical data, the pharmaceutical industry was characterized through the trends included in the table below in the period between 1989 and 1998.

According to the statistical data relating to the organizations operating with more than 20 employees in the period of 1989 to 1998, the share of the pharmaceutical industry in the *industrial gross production* has been diminished from 3% to 2.7%. Considering the 10-year period, the share in the gross production started to decrease in 1995. Until that time, the data show an increasing tendency due to the diminishing average gross industrial production. This line of data refers to the fact that the pharmaceutical industry could keep its earlier position in the industry in general.

Considering the data on *export sales*, a diminishing tendency may be seen again. In this case, the diminishing is much larger than with the gross production. While the foreign sales of the pharmaceutical industry were 6.6% of the export sales of the total industry in 1989, this figure has been diminished to 2.2% by 1998. This diminishing tendency is

characteristic of the pharmaceutical industry from 1995 on. This is in correlation with the fact that, in general, the export of the complete industry can be featured by a much larger growth rate than that of the pharmaceutical industry. In analytical studies, it has been pointed out that the multinational companies settled down in Hungary by inward foreign direct investment had a considerable part in it.

Table 6.2.1 Statistical data on the pharmaceutical industry, 1989-1998

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Gross pharmaceutical production. Billion HUF	51.6	61.8	69.9	56.7	71.3	84.0	102.5	128.1	173.9	199.7
Gross industrial production. Billion HUF	1717.6	1927.8	2144.4	1798.7	2040.9	2476.1	3521.2	4410.0	5965.2	7514.8
Pharmaceutical as % of industrial production	3.0%	3.2%	3.3%	3.2%	3.5%	3.4%	2.9%	2.9%	2.9%	2.7%
Pharmaceutical export. Billion HUF.	29.8	31.4	37.2	26.0	36.9	41.2	48.7	58.2	69.2	79.3
Industrial exports. Billion HUF	450.6	460.4	384.4	427.1	492.6	673.5	1105.4	1557.1	2518.0	3569.7
Pharmaceutical exports as % of industrial exports	6.2%	6.8%	9.7%	6.1%	7.5%	6.1%	4.4%	3.70%	2.7%	2.2%
Employees in pharmaceutical industry. Thousands person	22.8	23.4	22.7	20.3	18.5	17.6	17.4	15.7	15.2	15.4
Employees in industry. Thousands persons	1356.4	1282.2	1147.6	997.1	673.4	798.2	763.6	735.4	733.5	750.9
Pharmaceutical employees as % of industrial employees	1.7%	1.8%	2.0%	2.0%	2.7%	2.2%	2.3%	2.1%	2.1%	2.1%
Gross pharmaceutical wages. Thousands HUF	10.8	16.8	22.6	30.2	40.5	53.7	66.6	85.8	109.3	125.6
Gross industrial wages. Thousands HUF	10.7	13.2	16.8	19.6	27.5	33.9	41.2	50.2	61.2	71.5
Pharmaceutical wages as % of industrial wages	101%	127%	134%	154%	147%	158%	162%	171%	179%	176%

Source: Hungarian Statistical Office (KSH) yearbooks. Data refer on companies with more than 20 employees.

If the *number of employees* in the industry is considered, it may be seen that in this respect the pharmaceutical industry not only kept its position as employer, but it could also improve it, because it gave work to do to 2.1% of those employed in the industry in 1998 as against to the share of 1.7% in 1989.

Considering the *nominal gross wages and salaries*, it turns out that the wages and salaries of those employed in the pharmaceutical industry have significantly increased compared to the industrial nominal gross wages and salaries in the investigated period. At the beginning of the investigated period, in 1989, the gross wages and salaries were nearly at the same level, which has considerably changed by the end of this period. The gross wages and salaries in the pharmaceutical industry are now with 75.6% higher than the industrial mean gross wages and salaries. It is presumably in connection with the fact that during this period the ratio of the white-collar employees has considerably increased due to the circumstance that the number of blue collar staff has been reduced nearly to the half, while the number of the white collar staff has increased to a small extent. According to the data, the decrease in the number of employees affected the blue-collar staff in the pharmaceutical industry at the first place.

Based on the tendencies shown in the development of the gross production, number of employees as well as the gross wages and salaries, such an overall picture of the pharmaceutical industry comes to light, which shows that; on the whole, the pharmaceutical industry could keep its earlier position within the Hungarian industry. It holds true of the gross production and especially of the employer status. Diminishing of the share in the gross production refers to the fact that the growth rate of the gross production of the pharmaceutical industry did not keep space with the growth rate of the gross production of the industry. Keeping the position as employer shows that the reduction in the staff number was of smaller extent in the pharmaceutical industry than in the whole of the industry. The diminishing tendency of the export data poses the problem that the competitiveness of the pharmaceutical industry has been reduced as compared to that of the whole industry if this issue is examined exclusively on export data. However, if the data on the share of the Hungarian export in the world export mentioned in Chapter 5 are called to the mind – that was 0.32% in 1989 and more than 0.36% in 1997 – the pharmaceutical industry should be considered competitive in the approach by Porter (1990), because it continues to represent 1.6-2.0% of the total Hungarian export. Based on the analysis of the statistical data, it may be concluded that there was no fundamental change in the role of the pharmaceutical industry in the industry as compared to the earlier situation, however, its competitiveness in export has been diminished compared to the whole of the industry. For a deeper interpretation of the above-mentioned data and the judgment of the competitiveness of the pharmaceutical industry, it is also necessary to review the international and domestic tendencies of the pharmaceutical industry. Before this question would be answered, however, the development of the rate of employment, per capita productivity and the gross real wages and salaries per head in the pharmaceutical industry will be investigated in details.

The more detailed analysis shall be started with the development of *the rate of employment*. As it was mentioned, the pharmaceutical industry kept its employer position in the industry in the period between 1989 and 1998. If the chain index on the development of the number of employees in the pharmaceutical industry is investigated, it may be seen that the number of employees has continuously decreased both in the pharmaceutical industry and the industry, and this decrease seems to be stopped at the 1997 level in 1998. The chain indexes also disclose the fact that the decrease in staff was started in the pharmaceutical industry later and the decrease was of smaller rate than in the

whole of the industry. The basis indexes on the rate of employment show that in the whole of the industry the decrease in employment was much larger than in the pharmaceutical industry. The rate of employment has diminished almost to the half; in 1998 only 55.4% of employees in 1989 could find work in the industry. The same value was reduced to its two-thirds in the pharmaceutical industry, in 1998, 67.7% of the staff in 1989 had job in the pharmaceutical industry.

Table 6.2.2 Chain and base indexes of employment in the pharmaceutical industry, 1989-1998

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Pharmaceutical employees, thousands persons	22.8	23.4	22.7	20.3	18.5	17.6	17.4	15.7	15.2	15.4
Industrial employees. Thousands persons	1356.4	1282.2	1147.6	997.1	673.4	798.2	763.6	735.4	733.5	750.9
Pharmaceutical employees as % of industrial employees	1.7%	1.8%	2.0%	2.0%	2.7%	2.2%	2.3%	2.1%	2.1%	2.1%
Pharmaceutical chain indices	100.0%	102.8%	96.8%	89.3%	91.4%	95.3%	98.5%	90.3%	96.7%	101.7%
Industrial chain indices	100.0%	94.5%	89.5%	86.9%	67.5%	118.5%	95.7%	96.3%	99.7%	102.4%
Pharmaceutical industry. 1989.	100.0%	102.8%	99.5%	88.9%	81.2%	77.4%	76.2%	68.8%	66.6%	67.7%
Industry. 1989.	100.0%	94.5%	84.6%	73.5%	49.6%	58.8%	56.3%	54.2%	54.1%	55.4%

Source: KSH yearbooks. Data refer on companies with more than 20 employees.

The *gross production value per capita* is higher in the pharmaceutical industry than in the whole of the industry. However, the difference available in 1989 has significantly been reduced during the 10-year period. While in 1989 the gross production value per capita was with 78.7% higher in the pharmaceutical industry, the same data was only 29.3% in 1998. Between the two dates, the decreasing tendency of the difference may be observed, however, this decrease was not monotonous. I have also calculated the gross production real value per capita. Followed Blahó (1999), the gross production value per head has been deflated with the consumer price index. The real productivity indices show an increasing tendency. Considering the chain index, it may be seen that in 1992, the production value per capita did not reach that in the previous year in the pharmaceutical industry, while in the whole of the industry the production value per capita was higher every year than in the previous year. Looking back to the table 6.2.1., it may be seen that the decrease in export sales was the largest in the pharmaceutical industry this year. In the industry, the data of 1993 is mind higher than the previous one, which is justified by the sharp decrease the number of employees. According to the statistical data the decrease in the number of employees was the largest in the whole of the industry in 1993 and following this an increase could be observed. Considering the real productivity basis index, it turns out that during the 10-year period the productivity per capita did not decrease below the 1989 level, and in the industry from 1991 on, while in the pharmaceutical industry from 1993 on, a considerable increase occurred compared to 1989.

Table 6.2.3 Gross production value per capita, 1989-1998

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Pharmaceutical industry, mHuF	2.263	2.639	3.079	2.800	3.850	4.764	5.897	8.167	11.456	12.941
Industry, mHuF	1.266	1.504	1.869	1.804	3.031	3.102	4.612	5.997	8.132	10.008
Pharmaceutical as % of industry	178.7%	175.5%	164.8%	155.2%	127.0%	153.6%	127.9%	136.2%	140.9%	129.3%
Pharma per capita gross production value, chain indexes	100.0%	116.6%	116.7%	90.9%	137.5%	123.7%	123.8%	138.5%	140.3%	113.0%
Industry per capita gross production value, chain indexes	100.0%	118.7%	124.3%	96.5%	168.0%	102.4%	148.7%	130.0%	135.6%	123.1%
Consumer Price Index	1.17	1.28	1.35	1.23	1.22	1.18	1.28	1.23	1.18	1.14
Pharma: deflated production value per capita, m HUF	1.934	2.048	2.281	2.276	3.143	4.010	4.600	6.607	9.684	11.32
Industry deflated production value per capita, m HUF	1.082	1.166	1.384	1.467	2.474	2.611	3.597	4.852	6.874	8.756
Pharma: deflated production value per capita chain indexes	100.0%	105.9%	111.4%	99.8%	138.1%	127.6%	114.7%	143.6%	146.6%	116.9%
Industry deflated production value per capita chain indexes	100.0%	107.8%	118.7%	106.0%	168.7%	105.5%	137.8%	134.9%	141.7%	127.4%
Pharma: deflated a production value per capita base indexes	100.0%	105.9%	117.9%	117.7%	162.5%	207.3%	237.8%	341.6%	500.6%	585.3%
Industry deflated production value per capita base indexes	100,0%	107,8%	127,9%	135,5%	228,6%	241,3%	332,4%	448,3%	635,2%	809,1%

Development of the *average gross monthly wages and salaries* shows that the difference between the gross wages and salaries in the pharmaceutical industry and the industrial average gross wages and salaries has considerably increased for the benefit of the pharmaceutical industry. The chain indexes deflated by consumer price index show that the real wages and salaries have continuously increased both in the industry and the pharmaceutical industry. Data on the real wages and salaries in the pharmaceutical industry show a more intense growth than the same data on the whole of the industry. A more considerable increase in the pharmaceutical industry exceeding the industrial data may be especially observed from 1992 on. If the chain indexes on the development of the real wages and salaries are compared to the chain indexes of the real production value per capita, it may be seen that the rate of increase of the real wages and salaries has regularly exceeded the rate of increase of the real productivity in the pharmaceutical industry between 1989 and 1992, and following this, with the exception of 1994 and 1998, it remained below this. Considering the data relating to the whole of the industry, a tendency similar to that of the pharmaceutical industry may be observed between 1989 and 1992, when the increase rate of the real wages and salaries has exceeded the rate of increase of the gross real production value. Subsequently, with the exception of one year, 1994, the increase rate of the real wages and salaries has not, however, reached the growth rate of

the production value. These two data series refer to the fact that the correction of the wages and salaries earlier considered to be depressed took place between 1989 and 1992, then following this the development of the wages and salaries has been adjusted to the development of the productivity in its tendency.

Development of the average monthly gross wages and salaries is staggering at the first sight; however, a deeper analysis of the reasons is out of the competence of the thesis. I call the attention to the fact that the industrial data are the data of companies having more than 20 persons on staff, which means that the large companies are dominants in the above sample. These companies employ 18% of the Hungarian active workforce. Taking also the data of the organizations operating with less than 10 persons into account, the monthly average nominal wages and salaries represent a value with 4-5% lower in the industry than the data given the above table. This draws the attention to the fact that the organizations of larger size pay presumably higher gross wages and salaries than the smaller firms.

Table 6.2.4 Gross average monthly wages, 1989-1998

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Pharma industry thousands HUF	10,8	16,8	22.6	30.2	40.5	53.7	66.6	85.8	109.3	125.6
Industry, thousands HUF	10.7	13.2	16.8	19.6	27.5	33.9	41.2	50.2	61.2	71.5
Pharma as % of the Industry	101.3%	127.4%	134.4%	153.7%	147.1%	158.2%	161.7%	170.8%	178.5%	175.6%
Consumer Price Indes, %	117.0	128.9	135.0	123.0	122.5	118.8	128.2	123.6	118.3	114.3
Gross deflated wages in the pharma industry, thousands HUF	9.281	13.019	16.739	24.551	33.058	45.217	51.974	69.397	92.387	109.924
Gross deflated wages in the industry, thousands HUF	9.165	10.223	12.451	15.970	22.478	28.577	32.148	40.634	51.754	62.585
Chain indexes of pharma deflated wages	100.0%	140.3%	128.6%	146.7%	134.6%	136.8%	114.9%	133.5%	133.1%	119.0%
Chain indexes of the industrial deflated wages	100.0%	111.5%	121.8%	128.3%	140.7%	127.1%	112.5%	126.4%	127.4%	120.9%
Base indexes of pharma	100.0%	140.3%	180.4%	264.5%	356.2%	487.2%	560.0%	747.7%	995.4%	1184.4%
Base indexes of industry	100.0%	111.5%	135.9%	174.2%	245.3%	311.8%	350.8%	443.4%	564.7%	682.9%

It is also worth comparing the basis index of the real gross wages and salaries with the productivity basis index per capita. From this, it turns out that in the whole the real wages and salaries have increased in the pharmaceutical industry at a higher rate than the per capita real value of the gross production in comparison with 1989. In the pharmaceutical

industry, the real value of gross production in 1989 has grown to its 5.8 fold, while the real wages and salaries to their 11.8 fold. This statement is not true to the totality of the industry. Here, the gross real production value in 1989 has grown to its 8.1 fold, while the gross real wages and salaries have increased to 6.8-fold.

Table 6.2.5 White and blue-collar workers in the pharmaceutical industry, 1989-1998

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Employees, thousand persons, total	22.90	23.43	22.69	20.26	18.52	17.64	17.38	15.69	15.18	15.43
out of blue collars	16.84	16.89	16.15	14.24	12.67	11.50	10.84	9.53	8.99	8.84
out of white collars	6.23	6.54	6.54	6.02	5.85	6.14	6.53	6.16	6.18	6.59
ratio of blue collars	73.5%	72.1%	71.2%	70.3%	68.4%	65.2%	62.4%	60.7%	59.3%	57.3%
ratio of white collars	27.2%	27.9%	28.8%	29.7%	31.6%	34.8%	37.6%	39.3%	40.7%	42.7%

One of the possible explanations of this may be that the composition of those employed in the pharmaceutical industry has changed. The ratio of the blue-collar staff to the white-collar staff was reduced from 2.7:1 in 1989 to 1.3:1 in 1998, i. e. the ratio of the white-collar employees has considerably increased. This means that the ratio of the white-collar employees has grown to 42.7% in comparison to the ratio of 27.2% in 1989. This correlation seems to indirectly support the statement that the industry requiring more high-qualified skills was able to increase the wages and salaries to an extent exceeding the average of the totality of the industry.

The statistical data seems to strengthen the statements pertaining that the over-employment has ceased in the Hungarian industry and in the pharmaceutical industry. Data on the pharmaceutical industry have shown that the structure of employment has also changed structurally in the sector: the ratio of the white-collar employees has increased to the double of the same figure in 1989. When the productivity was investigated, we started out from the production value per capital. Our investigations have shown that both in the industry and the pharmaceutical industry the real production value has not decreased significantly below the value of 1989. In the industry, the increase rate of productivity has exceeded the rate of increase of the productivity of the pharmaceutical industry to a great extent in which the considerable decrease in the number of those employed had an important role. In connection with the gross wages and salaries, it may be established that the period between 1989 and 1992 could be deemed as the period of correcting the depressed wages and salaries, then following this the growth rate of the real wages and salaries was in accordance with the rate of increase of the real productivity.

Based on the above analysis to the industry and the pharmaceutical industry, *in connection with the competitiveness*, the following theses can be established.

The pharmaceutical industry could keep its position as employer in the transforming industry. In the pharmaceutical industry, composition of the employees has structurally changed for the benefit of the white-collar staff. The gross wages and salaries of those employed in the pharmaceutical industry have increased to an extent exceeding the totality of the industry which refers to the fact that this industry was able to contribute to the increase in the living standards of its employees.

6.2.2 Characteristics of the medicines as products

In this subchapter, the characteristics of medicines as products are summarized. My intention by that is to underline the features, which fundamentally determine the operation of the pharmaceutical industry. At the first, the prescription drugs and non-prescription drugs, then the original and generic products are discussed, and finally the special features of the price setting are summarized. I hold the summary of the features of the medicines of crucial importance, because from this the motivation and interests of the individual players of the industry are more transparent.

Medicines are applied in the human organism or on the surface of the human organism to prevent, recognize and treat diseases or to maintain, restore, improve or modify physiological functions, as the Hungarian Medicine Law (Law XXV, 1998) states. The most important classes of the medicines available for the treatment of diseases are summarized in the figure 6.2.1. Diseases represent the most motivating needs inciting to develop medicines. Grouping of the medicines shown in the figure has been carried out based on two aspects. One of the aspects is the patent protection of the product (medicine), the other one is whether those are prescription drugs or non-prescription drugs. Patent protection classifies the medicines from the manufacturers' point of view, the medical prescription groups the medicines from the patients' access' point of view.

Medicines intended for human use are products, which are purchased or consumed by the ill people upon the advice of competent persons (physicians or pharmacists). This aspect is also followed by the European Union as a guideline outlined to serve the creation of the single market when the classification applied with the marketing of pharmaceutical products was formed. The terms and conditions of the medicine supply are regulated by the state. In Hungary, the so-called medicine law, Law XXV, regulates these terms and conditions 1998, elaborated taking the relevant guidelines of the EU into consideration. If a physician can order a medicine only, it is prescription drug. If no consultation with a physician is required to select a pharmaceutical product, then the patient may have access to the to medicines non-prescription drug, characteristically as a result of the consultation with a pharmacist or the advertisements. Determination of the list of prescription drugs is the task of the competent national authority. This list should be published annually. Generally, all subsidised medicines are ranked into the group of prescription medicines. As a consequence of this, the range of the prescription drugs of the pharma market is more traceable than any other product market.

Figure 6.2.1 Main Types of Medicines

	<i>patent protection</i>	
Doctors prescription necessary	<i>yes: original products</i>	<i>expired: generic products</i>
Yes: prescription	<i>original prescription</i>	<i>generic prescription</i>
No: OTC, non-prescription	<i>original OTC</i>	<i>generic OTC</i>

The consumption of pharmaceutical products – and thus the amount of money paid for the medicines - does not depend fundamentally on the sovereign decision of the consumer. This fact is also important from that point of view that with the sales of the prescription medicines not the patients are primarily influenced for the manufacturers but the physicians. It is less true for the non-prescription products (over-the-counter, OTC), because the opportunity on advertising is also available in our country, but the role of the physicians, and especially that of the pharmacists, continue to exist.

Medicines are such confidential products the development of which require considerable research and development expenditure and time, thus those are under patent protection. To obtain of the patent protection, require a long-lasting research and development process leads. The most important phase of which is the verification of the efficacy and safety of the product by the manufacturer. (Phases and estimated costs of the development of new original medicines are discussed in the subchapter 6.1.) Verification of efficacy and safety of a pharmaceutical product is also a precondition of the marketing permission in general. From patent protection's point view, it is worth differentiating to kinds of pharmaceutical products: the original and generic products.

The original products are new products under patent protection, while generic products are medicines manufactured with the same active ingredient after the patent expiry. Original products under patent production get into the market at a much higher price than the generic products. The background of this is that nowadays the costs of development of a new original product and its introduction to the market are between USD 300-400 million, which should be covered by the manufacturer, and this process takes 7-20 years. For the recovery of R&D costs invested until launching the original product to the market, the manufacturer has 17 years from the date of granting the patent protection, which ensures, at the same time, 10-13 years of monopolistic position in the market, in optimal case. In the case of domestic import products, the consequence of this process was that the average price of the original products per packaging unit was HUF 3068.80 in 1996, as against the not new products the price of which was HUF 737.80/box (HVG, 1997).

From the point of view of manufacturing original products, the *license products* should be distinguished, which cover the range of the products manufactured and distributed, respectively, based on the manufacturing permission obtained from the patent owner of the original products. In Hungary and the developing countries, the group of the so-called *re-produced products* still exists. Products belonging to this group have been developed under the patented process system. The essence of this is that the patent protects not the active ingredient, like in the product patent system, but the process of manufacturing the product from the active ingredient.

The considerable price difference of the original products affects the social insurance spending to a large extent, therefore, from the 1980s on there is an international tendency, to prefer the generic products, i. e. the so-called *generic wave* started to gain ground. It means that if a cheaper generic product is available, the social insurance systems prefer that. This tendency is prevailing in the US market. It is expected in Europe and Japan that the share of generic products will increase from the 9% and 7%, respectively, in 1994 to 14% and 15%, respectively, by 2000 (Antalóczy, 1997).

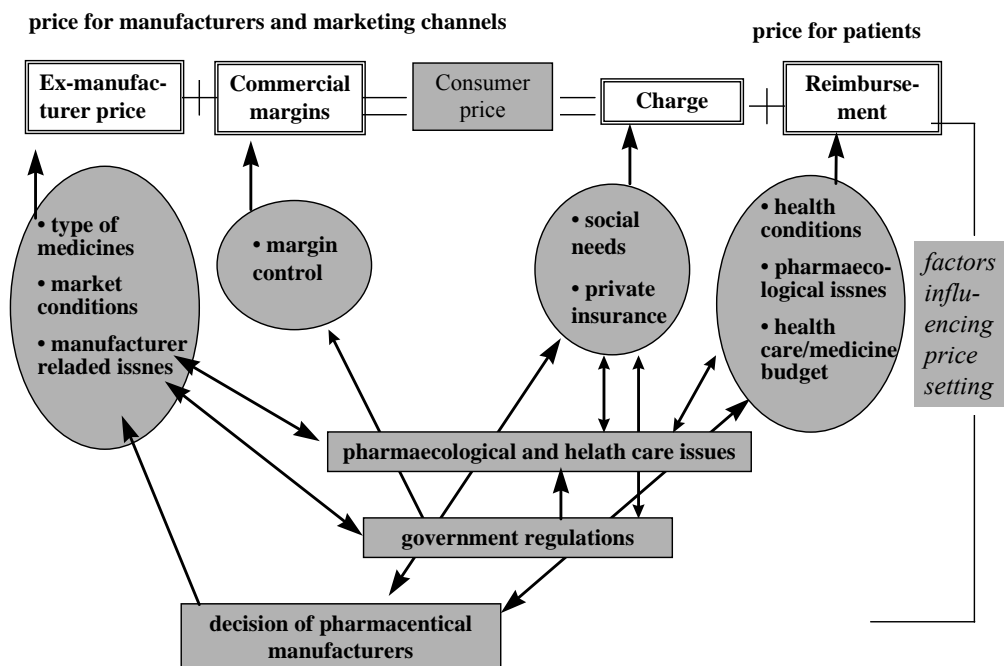
Launching medicines into the market is subject to permission independently from whether it is about a prescription drug or non-prescription drug. The conditions on obtaining the permission necessary for market the are restrictions of entering the market with respect to the fact that the marketing permission should be obtained for each of the products with different dose and formulation.

The following feature of pharmaceutical products is the price setting. The most important feature of the drugs is that the prices paid by consumers (patients) may considerable differ from the prices set by the manufacturers in the case, if the product is subsidized. Patients can get pharmaceuticals free of charge, however, somebody should pay their price to the manufacturer. The mechanism of the domestic price formation of pharmaceuticals is summarized in the figure 6.2.2 based on which the following “prices of the medicines” should be mentioned.

Ex-manufacturer price is based on their costs. On the formation of these prices, the subsidization system has also an effect in addition to company’s price policy and market factors. From their sales’ point of view, the pharmaceutical companies should calculate with this price, from governmental point of view this price represents the basis of determining the commercial margins. Neither import tax, nor value added taxes are imposed on pharmaceutical products in Hungary.

Consumer price is ex-manufacturer increased by the wholesale price- and retail price margins (commercial margins). The national authorities regulate the commercial margins. If the medicine does not receive subsidization, the consumer price is the same as the reimbursement charge. The consumer price is the basis of determining the subsidization.

Figure 6.2.2 Determinants of pharmaceutical prices



Charge is the price to be paid by the patient. It is the consumer price reduced by the subsidization given by the social insurance (and in the case of private health insurance by the private insurance). In the approach of the patients, the reimbursement charge and the consumer price are absolutely the same with respect to the fact that the question for them is how much they should pay for the medicines.

Reimbursement is an amount determined in the percentage of the consumer price of the product or as a fix amount, respectively which are established by the social insurance and financed to the account of the Health Insurance Fund. In the price formation process, the sum of the subsidy is a cardinal question from the points of view of the National Health Insurance Fund (NHIF), manufacturers and distributors. From the NHIF's point of view, the amount of the distributable subsidization (approved in the budget) represents the bottleneck. Besides, award of the subsidy is the tool of enforcing public health care and social aspects, where the most important aspect is the restored health/well-being due to the effect of the medicines. From the manufacturers' and distributors' point of view, the issue on subsidization is one of the key questions of their market share: the physicians select their medicine with higher probability if those go with a lower reimbursement charge for the patients.

6.2.3 Role of the government in the pharmaceutical industry

The pharmaceutical industry is an industry where as compared to the other industries governmental regulations are very important. There are three fundamental reasons for this.

One of the reasons is to *prevent patients from making false decisions*. This is resulted from the fact that the pharmaceuticals are products for the judgment of the quality and efficacy of which the patients have not proper knowledge and information. These are the reasons for the current governmental regulations on manufacturing; marketing and access are in force. There are considerable differences between the developed market economies; the most important aspect outlined by the European Union is to ensure the transparency that was discussed in the Chapter 6.1.

The next reason is the *enforcement of the welfare aspects of the government*. The health is a basic value that cannot be expressed in terms of money and to which every citizen has the right. However, pharmaceuticals necessary for this are market goods the access of which depends on the incomes of the citizens. Therefore, for a reason rooted in the principle of social justice, a certain range of pharmaceuticals is accessible to those at the expanses of the central funds in the market economies whose incomes would not make this possible from their own sources. In this field, it is the task of the government to try to harmonize the principle of social justice and the governmental expenditure, as well as to incite the pharmaceutical companies to put their medicines to the market at the possible lowest price. The *third reason is the social insurance* and, within this the existence and coverage of the health insurance. Within the framework of the social insurance system formed by traditions and political value selections, citizens can get the pharmaceuticals cheaper under regulated conditions. The health insurance belonging to the social insurance strives to enforce the principle of insurance the fundamental thesis of which is that the health insurance contribution paid in should cover the expenses of health care services.

Thus, subsidies on pharmaceuticals are tightly linked to the health care system. The private health insurance is a supplement to the compulsory health insurance both in Europe and Hungary.

Practical enforcement of the above reasons in the pharmaceutical industry is resulted in altering governmental policies and measures based on political value selections. The government regulate the professional issues and it controls the price and access to the medicines. The pharmaceuticals market behavior of the government is characterized by monopsony in countries having compulsory health insurance systems. Regulation professional issues are less debated than the control of the prices since it is easier to come to compromises in the regulation on professional issues.

The *pharmaceutical industry is a dynamic growing industry of the national economy* because of its R&D intensity. It is a preferred industry in many economies, mainly because of its multiplying effect on the innovation and employment. In the recent years the life-quality considerations also incites the stressed treatment of this industry (The 5th frame program of the EU emphasizes the role of R&D and pharmaceutical industry based on this aspect.) Furthermore, pharmaceutical industry is an anticyclical industry, i.e. the recessions have less effect on the production and employment here than on the other industries of the national economy. The statistical data discussed earlier also referred showed to this. This incites the governments of the countries having domestic pharmaceutical industry based on other considerations to take steps in order to keep this industry. In addition to the governmental policies supporting the domestic production, international tendencies clearly show globalization and the operation of companies and company alliances passing through the national boundaries and economic integrations. Nowadays, the pharmaceutical industry of the developed countries is jointly featured by the support and protection of the domestic industry with refined tools and the globalization's gaining ground.

In the Hungarian pharmaceutical industry, the following regulations affecting the pharmaceutical industry took place in the period of 1990-1999 in order to establish a market-economy conform system.

Control of the subsidization of medicaments. From 1st January 1993, on the National Health Insurance Fund and National Pension Fund have been separated in the Hungarian social insurance system (Law LXXXIV, 1992). This step targeted to place the social insurance on insurance basis where the contributions paid in and the return on the granted assets should principally cover the spending of the Fund. The task of National Health Insurance Fund (NHIF) is to manage the Health Insurance Fund. The NHIF was under the government of an elected body by insured citizens between 1993-1998, since 1998 it has been managed under governmental supervision. This a governmental centralization has affected the management of both the income and expenditure of the Health Insurance Fund. On the income side the collection of the health care contributions was transferred to the National Tax and Finance Supervising Authority (APEH), so to say, as taking the suggestion of Kornai (1998), and the expenditures have been influenced by a more definite attitude keep the budget of pharmaceuticals.

Data available on the budget of the Health Insurance Fund between 1994-1998 show that exceeded the planned expenditures in each year. According to the data shown in the table below, the planned budget was the most exact in 1995 – when the total of the actual expenditures exceeded the planned one by 3.4% - while the most critical year was 1998 – when the actually sums exceeded the planned amount by 32%. The actual expenditures have been increased by the one third of the actual amount of the previous year in each year. This growth rate has considerably exceeded the growth of the consumer price index.

Table 6.2.6 Subsidization of medicaments. Targets and actual figures 1994-1998

	1994	1995	1996	1997	1998
Target. billions HUF	50.700	67.702	84.300	85.383	102.580
Actual. billions HUF	61.572	69.977	97.613	100.876	135.474
Actual as % of target	121.4	103.4	115.8	118.1	132.0
Annual growth	100	136.5	139.5	133.4	134.3

Source: National laws on budgets and reports on social insurance funds.

Expenditures of the Health Insurance Fund can be divided into two entries, the provisions in kind and financial aids. Subsidization of medicines, financing of preventive provisions and the support of the therapeutic appliances belong to the entry of provisions in kind. The sickness benefit, child-care and the compensations for indemnification, among others belong to the financial aids. If it is investigated what a role the subsidization of medicaments had in the expenditures of the Fund, it may be seen that the subsidization of pharmaceuticals totaled to an increasing ratio of the expenditures of the Fund and its growth rate considerably exceeded the growth rate of the expenditures of the Fund. Overdrafts of the budgeted allocations and its growth rate in the expenditures of the Fund have led to a more stringent control in the subsidization system of the medicaments.

Table 6.2.7 Subsidization of medicaments as of the Health Insurance Fund

	1995	1996	1997	1998
Subsidy on medicaments. Billions HUF	70.777	85.495	100.876	135.475
Total expenses of the Health Insurance Fund (HIF)	445.175	508.987	555.585	632.194
Subsidy on medicaments as % of total expenses of the HIF	15.9%	16.8%	18.2%	21.4%
Subsidy in 1995 value	100.0%	120.8%	142.5%	191.4%
Expenses of the HIF in 1995 value	100.0%	114.3%	124.8%	142.0%

Source: National Health Insurance Fund Administration. Statistical Yearbooks. 1995. 1996. 1997. 1998.

Price control of the medicaments. From 1st March, 1995 on, the price control of the medicaments has fundamentally changed (Regulations No: 2/1995 (II.8.) NM and 3/1995 (II.8.) NM). The purpose of the change was (1) to reduce the amount of money spent on the subsidization of pharmaceuticals, (2) to supply the medicine for those in their need and (3) to separate the subsidization of medicaments from the welfare. In parallel to this, price

liberalizations have also taken place in the pharmaceutical industry. Main changes were as follows:

- Reimbursement rates have been reduced from 95% to 90%, from 80% to 70%, from 50% to 40%.
- A positive list has been introduced: one of the tools for enforcement of the welfare aspects in connection with the price regulation. The price increase of the medicaments in this list receiving 90% and 100% subsidization has been assumed by HIF for one year.
- The medicines not included in the positive list receive either 40% or 70% rates of subsidy.
- The fixed sum subsidy support continued to be in force: if the direct substitution exists among the medicines in both their active ingredient and formulation, then all products are given the same subsidization as the sum granted to the cheapest medicines.

Price control was transferred to the scope of the government in 1999 (203/1999. (XII.26.) Governmental regulation). There was no change in the rates of subsidy but the conditions of the subsidy became more stringent. The price increase are assumed by the HIF exclusively in the case of the medicaments with 100% subsidy and in case of lowering the price of any of the subsidized products, this reduced price will be the basis of all the subsidy. Based on the data collected from the national accounting and recipe controlling system, the HIF is bound to make a report to the health minister every month.

Enforcement of the welfare aspects. The free of charge access to the medicaments for those in the need is ensured by the list on the public health provisions introduced in 1995. This step also served as a separation of the welfare issues and insurance considerations in the health care system. Through the system of the *public health provision card*, the government desires to provide the medicament, therapeutic appliance, dental technical tools and physiotherapeutic provisions free of charge to those in the need of these due to their social difficulties (Law III., 1993). The right to have this card is awarded by the local governments and they fill in the public health provision cards based on the centrally determined aspects. Costs of the public health provision are covered by the central budget and social insurance funds, partly through the local governments. The table below shows the amounts paid out in the framework of the public health provision. From this it turns out that the expenditure increased almost to their four fold between 1994-1998, and this growth affected the central budget in the first place that increased nearly to its 5-fold in the investigated period. These amounts, however, include the complete allocation of the public health provision and affect more than 400,000 patients.

Table 6.2.8. Subsidies for public health provision card owners, millions HUF, 1994-1998

	1994	1995	1996	1997	1998
Through local governments	799	1120	1049	1125	1404
Central government	1962	4469	6801	8450	9660.6
Total	2761	5589	7850	9575	11094.6

Source: Lows and reports on state budget and on funds of Hungarian Social Insurance.

In the public health provision system, the inhabitants having the right receive medicaments free of charge to cover their personal needs, and all the reimbursement charge to be paid by the patient will be paid in these cases. According to the HIF's records, it can be principally followed what amount of the subsidy has been used in the framework of the public health provision system since physicians should indicate this on the recipes of the HIF. The average number of recipes per inhabitant was 9.2 in 1996, while the same data per person having public health provision card was 58.1. Total value of pharmaceuticals utilized in the public health provision system was HUF 22.566 billion 70% of which were drugs with 100% subsidization in any way, and the rest of 30% resulted from the subsidy on reimbursement charges. As it was mentioned, the budget finances these latter costs that corresponds to 7-8% of the subsidization of the medicaments.

Table 6.2.9 Subsidy on medicaments for public health card owners, 1994-1998

	1994	1995	1996
100 % reimbursed medicaments	8.759	14.263	15.762
• as % of total medicaments for public health card owners	77.6	71.3	70
• as % of total subsidy on medicaments *	14.2	20.38	16.1
Subsidized reimbursement. Millions HUF	2.528	5.468	6.804
• as % of total medicaments for public health card owners	22.4	28.7	30
Total expenses of medicaments for public health card owners	11.287	19.731	22.566
• as % of total medicaments for public health card owners	100	100	100

Source: Gyógyszerészet. June. 1997 and * calculated on the base of table 6.2.6

The Houses of Parliament and the government respectively also regulate the pharmaceutical industry. The most important fields are as follows:

The *Medicine Law* was accepted in 1998 (Law XXV., 1998). This law regulates, among others, the conditions of putting medicaments into circulation and the prescriptions packaging and patient information leaflets. This law has taken the relevant guidelines of the EU into consideration.

Manufacturing requirements are regulated by a governmental regulation (37/200. (III.23.) in details. Manufacturing of pharmaceuticals is an activity subject to permission; the National Institute of Pharmaceutics (OGYI) carries out the supervision. The governmental regulation has been accepted owing to the harmonization of the rights in the European Union, and the personal and objective conditions of manufacturing pharmaceutical products have been determined based on the Good Manufacturing Practice (GMP). In connection with this it is noted that due to the export-orientation of the pharmaceutical industry the GMP has been in effect with the pharmaceutical companies since 1976. The legal conditions of this have been created by the decree of legal force No: 31 in 1976. The regulation on the Good Laboratory Practice (GLP) was announced in 1999 (31/1999).

(VIII.6.) joint regulation by the EÜM-Ministry of Health Care and FVM-Ministry of Agriculture and Regional Development Ministry, the regulation relating to the Good Clinical Practice (GCP) was not yet published at the time of preparing this dissertation.

Sales of the medicaments have been regulated in three fields. In the law (LIV, 1994) on the foundation and operation of pharmacies, the conditions on the wholesale and retail trade of the medicines have been determined. The commercial margin on the pharmaceuticals has been controlled since 1992 (22/1992. (VIII.19.) decree by the NM-Ministry of Welfare, predecessor of EÜM). The regulation of advertising medicaments took place in 1997 (24/1997.(VII.14.) decree by the NM).

The *most important institutions of the regulation* by the government are as follows: the Government (as the supervisory board of the Health Insurance Fund, and the final decision maker in price setting), the Ministry of Health Care (EÜM) (in professional issues, and in setting the commercial margins), National Institute of Pharmaceutics (OGYI) (as the issuer of permissions on putting the medicines into circulation, the supervisory authority in GMP and GLP issues), National Health Insurance Fund (as the institution conducting the price negotiations and managing the budget of the subsidy on medicaments).

The following features characterized the governmental regulation in the period 1989-1999: The social insurance was transferred to insurance basis from 1993 on. Managing the budget of the Health Insurance Fund was centralized and a higher pressure was exerted on the price setting of the pharmaceutical industry. With prospect to joining the European Union, laws and regulations have been elaborated which regulate the manufacturing and distribution of pharmaceuticals based on the guidelines of the EU and OECD countries. According to Farkas (1999), the pharmaceutical industry belongs to Hungarian industries, which are prepared enough to meet the EU requirements. The institutional frameworks for manufacturing and distributing pharmaceuticals have been established and it has strengthened.

6.2.4. Transition of the pharmaceutical industry

A comprehensive picture on the macroeconomic position of the pharmaceutical industry was given in Chapter 6.2.1. In the following, fields of the transition of the pharmaceutical industry are discussed. The purpose of this subchapter is to underline the economic as well as business and management factors, which had a fundamental influence on the competitiveness of the pharmaceutical industry in the period between 1989-1998. As the first, the development of the drug consumption and the factors having influence on it are discussed. Following this, changes in the marketing are detailed. The subsequent subchapter deals with the competitiveness within the industry, and finally, strategies of four companies are analyzed.

6.2.4.1 Drug consumption

At the first, the size of the domestic pharmaceutical market is discussed in international comparison based on the data published by the Central Statistical Office (KSH) and a

study performed by the European Union. The EU study referred below (1998) is a document was published on the single market in pharmaceuticals (COM(98)588 final) in November, 1998. It presents on an overview on pharmaceuticals market in the Eastern-European countries desiring to join EU.

Based on reports made by the KSH, the size of the domestic pharma market has developed according to the table below. According to this table, the domestic sales of drugs totaled to 1.83-1.95% of the GDP in the period between 1993-1998. Based on the international comparison made by the EU (EU 1998), this ratio is lower than the same figures in the majority of the EU member states and it corresponds to the same data of Greece and Portugal. It is noted that based on the referred comparison the ratio of spending on pharmaceuticals calculated, as the percentage of GDP is generally higher in countries desiring to join than in the EU member states. In terms of US Dollar, the public sales of medicaments corresponds to USD 0.8-0.9 billion. According to the comparison made by the EU, in Greece and Portugal having nearly the same size of population as Hungary but with the double of the per capita GDP in Hungary, the value of the pharma market in terms of US Dollar is USD 1.2 and 1.3 billion respectively.

The largest segment of the pharmaceutical industry, the subsidized drugs, was decreased from 77% in 1993 to 65-65% between 1993-1998. According to the referred international comparison, the mean value of the European Union was 61.2% around which the member states showed a considerable variance. Greece represents the lowest limit with its 16.7% value, Luxembourg has the highest limit with 80.2% to which Ireland is very close with its 78.1% value, while in Portugal the value of 63.2% is close to the EU average. The ratio of subsidies to the GDP shows a value close to the EU average.

Table 6.2.10 The Hungarian drug sales, 1990-1998

	1990	1991	1992	1993	1994	1995	1996	1997	1998
HUF/USD exchange rates	63.2	74.81	79	92.04	105.13	125.7	152.6	186.8	214.5
GDP per capita. USD	3228	3608	3745	4046	4326	4367	4433	4504	4694
GDP per capita. HUF	2079.5	2308.4	2942.7	3548.3	4364.8	5561.9	6893.9	8540.7	9865
Public medicaments sales. Billions HUF	na	na	na	66.328	81.358	108.666	128.6	156.6	191.2
Reimbursement budget. Billions HUF	25.9	36.7	40.2	51.137	60.885	72.775	84.317	101.733	126.79
Reimbursement as % of public medicaments sales	na	na	na	77.1	74.8	67.0	65.6	65.0	66.3
Total charges. Billions HUF	na	na	na	15.191	20.473	35.891	44.283	54.899	64.372
Total public medicaments sales as % of GDP	na	na	na	1.87%	1.86%	1.95%	1.87%	1.83%	1.94%
Reimbursement as % of GDP	1.25%	1.59%	1.37%	1.44%	1.39%	1.31%	1.22%	1.19%	1.29%
Charges as % of GDP	na	na	na	0.43%	0.47%	0.65%	0.64%	0.64%	0.65%
Public medicaments sales. billions USD	na	na	na	0.7	0.8	0.9	0.8	0.8	0.9

Source: KSH Statistical yearbooks

The above data show that the size of the Hungarian pharma market corresponds to the development state of the Hungarian economy. The size of the Hungarian pharma market is small in international comparison; however, the Portuguese and Greek data allow to come to the conclusion that the size of the market is in relation to GDP per capita. Through the extended social insurance system, the growth of the subsidies determines fundamentally the growth of the pharma market. From the table below it turns out that, with the exception of 1995, the growth rate of sales of pharmaceuticals changes with the growth rate of the GDP together. The growth rate of the segment measured on the reimbursement charge exceeded the growth rate of the subsidization and GDP considerably in 1994-1995. This period mirrors the changes in the regulation of the drug prices. Following this, the growth rate of reimbursement charge is not extremely high.

Table 6.2.11 Annual Growth of per capita GDP and public medicaments sales

	1993	1994	1995	1996	1997	1998
Annual Growth of per capita GDP	23.4%	27.8%	0.9%	23.2%	24.4%	19.7%
Annual Growth of public medicaments sales	na	22.7%	33.6%	18.3%	21.8%	22.1%
Annual growth of reimbursement	27.2%	19.1%	19.5%	15.9%	20.7%	24.6%
Annual growth of charges	na	34.8%	75.3%	23.4%	24.0%	17.3%

The domestic consumption of medicines in volume is held high in international comparison. It is usually explained by the health state of the Hungarian population held

impaired in international comparison, the ageing population and furthermore with the low domestic prices of drugs in international comparison. The volume of drugs consumption and especially its structure are also in close connection with national health and demographic factors. Looking at the distribution of therapeutical groups in the table below it can be seen that the sales of medicines is more concentrated according to therapeutical groups in Hungary than it is shown by the European data. The listed five therapeutic groups represent nearly 75% of sales of pharmaceuticals in Hungary, while this ratio is 47% with the European data.

Table 6.2.12. Drug sales revenue according to therapeutic groups

Therapeutic groups	Hungary	Europe
Cardiovascular deases	22	19
Systematic antibiotics	18	14
Gastrointestinal tract metabolism	14*	8
Central nervous system	14.3*	9
Respiratory system	6.1*	7
Others	25.6	53
<i>Total</i>	<i>100</i>	<i>100</i>

*Source: Antalóczy. 1997 és * Molnár. 1997*

From the patients' point of view, it is important that the medicaments used for the treatment of the most frequent types of illnesses should receive the subsidy. This expectation is enforced by the Ministry of Health and National Health Insurance Fund when forming the subsidization system of medicaments: their striving is that those suffering from long-lasting, chronic diseases should receive the allowances. The health state of population is resulted from several factors. According to the statistical data, the circulatory, cardiovascular diseases are the leaders among the diseases on 100,000 inhabitants which are followed by the gastrointestinal diseases, spinal sicknesses and diabetes. According the surveys, the medicines consumption in Hungary is not adjusted to the diseases: there are illnesses, which are under treated with medicaments, while other diseases "over-treated".

Table 6.2.13 Sales of the first 10 drugs in the 1st half of 1996 and 1997

Drugs	Usage	Sales at the 1 st half of 1996 billion HUF	Sales at the 1 st half of 1997 billion HUF	Dose on treatment. 1997 days
Tensiomin	Decrease in blood pressure	2.874	1.3	46
Augmentin	Antibiotics	2.295	1.4	
Cavinton	Stimulating the central nervous system	1.461	0.8	49
Insulin Novo	Diabetes mellitus	1.379	0.8	
Ednyt	Decrease in blood pressure	1.270	1.0	39
Nootropil	Stimulating the central nervous system	1.252		
Ceclor	Antibiotics	1.168		
Nitroderm	Vasodilatation	1.134		
Nitromint	Vasodilatation	1.100	0.7	66
Seropram	Anti depressants	1.051	-	
Renitec	Decrease in blood pressure	-	0.7	30
Centrum tableta	Vitamins	-	0.7	36
Humilin	Diabetes mellitus	-	0.6	
Diflonec	Rheum	-	0.2	
Corinfar	Coronary vasodilator	-	-	40
Eunoctin	Sedatives	-	-	34
Gilemal	Diabetes mellitus			29
<i>Total</i>		<i>14.99</i>	<i>8.6</i>	

Source: Molná, 1997 and Élő, 1997

From the above table it can be seen that the consumption of blood pressure decreasing drugs is considerable both in value and the number of therapeutic doses. It is also clearly shown that there was a considerable change in the order of the top 10 best selling products in the one-year period while the ratio of the 10 medicines has also decreased in value. This refers to the fact that drug consumption becomes fragmented.

Data on the volume of medicine consumption in international comparison, it show that consumption measured in boxes. Hungary belongs to the countries consuming the most pharmaceuticals. The medicine consumption in boxes shows a decreasing tendency (see table 6.2.14). Main reasons for that are as follows. Average price of the medicaments has considerably increased in the investigated period, and there was a considerable fall in domestic real wages and salaries, especially with that social group which are heavy medicine takers.

Table 6.2.14 Medicine consumption in volume, 1990-1996, millions boxes

	1990	1991	1992	1993	1994	1995	1996	1997
National	324	298.9	264.4	267.3	253.2	231.9	220.7	215.5
Imports	43.1	52.1	51.3	61.1	71.2	74.6	75	83.8
<i>Total</i>	<i>367.1</i>	<i>351</i>	<i>315.7</i>	<i>328.4</i>	<i>324.4</i>	<i>306.5</i>	<i>295.7</i>	<i>299.3</i>

Source: Molnár, 1997

From the table below, it turns out that the drugs consumption per capita is much higher in France. The reason for this is that the French data also include the data on homeopathic products that are used in large quantity.

Table 6.2.15. Medicine consumption in international comparison

Country	boxes per capita
United Kingdom	14
Czech Republic	17
France	51
The Netherlands	12
Poland	21
Germany	22
Portugal	19
Slovakia	20
Hungary	33

Source: HVG, 1997, based on Pharmafelax data

The assortment of medicaments. The liberalization on the Hungarian pharmaceuticals market in 1992 has led to a keen competition, which resulted in the intense import of pharmaceuticals. The data on pharmaceutical exports and imports show that the medicine import calculated at constant prices has increased to more than its 11 fold between 1990 and 1998. As a consequence of import liberalization, the domestic assortment of pharmaceutical products has considerably increased: the number of products, has grown to more than the double of the same figure in 1990, while the number of active ingredients increased only by 20% in the same period. In the growth of import medicaments, it was an important factor that the domestic government did not take any restrictive measures against their entering the Hungarian market. In international comparison, the assortment considering the number of registered products may be deemed low: based on the data recorded in 1995, in Hungary 2890, in Czech 13,000, in Germany 53,000 and in the United States of America 100,000 products were marketed. Of these products, more than 1400 medicaments were subsidised by the National Health Insurance Fund (Kövesi, 1997), and the number of the registered products was appr. 4000 in Hungary in the first half of 2000.

In connection with the assortment, the issue on *prices* is touched upon which is one of the most important factors generating debates both in the negotiations between the medicine manufacturers and NHIF and among the medicine manufacturers. Having reviewed the assortment consisting of more than 3000 medicaments for human use in 1997, it was established in a medical expert's report that within the range of pharmaceutical products,

where the assortment of the domestic medicaments would be sufficient, the share of import products was 48% in the value of HUF 141 million which, in the opinion of the experts, should be deemed as a superfluous factor deteriorating the trade balance (The assortment of medicaments in Hungary ... 1997). This was also resulted from the fact that the domestic government did not take the advantage of the license on import restrictions due to the agreement on association concluded with the European Union: the allocation of USD 100 million estimated by 2000 to import pharmaceuticals was exceeded with the import of USD 150 million already in 1995 (Antalóczy, 1997). Assortment of pharmaceutical products has been happily increased, but their expenses, too, at the same time.

Considering the domestic average medicine price of a box, it turns out from the table below that the average per box price in HUF shows an increasing tendency. There is a considerable difference in the average prices of domestic and import medicines, the price of import medicines was 3-4 times higher than that of the domestic medicines in the investigated period. In the period between 1990-1998, the price of the medicaments has considerably increased, the price of the domestic medicines has grown to its 8 fold, while that of import products has increased to more than its 6 fold.

The price increase in 1995 was extremely high in the case of both the domestic and import medicaments. It can be explained by the new system of the subsidization of medicaments introduced from 1st March 1995. It was forecasted that the new system of the subsidization of medicaments would be resulted in a more than 50% increase of the spending of the inhabitants on medicines. In creating the positive list, the active ingredient was taken as the basis: if a given active ingredient was entered in the positive list, then every pharmaceutical product containing the same active ingredient was entered in the basic list, independently from its formulation, origin, manufacturer and retail price. Finally, the subsidization system has contributed that the inhabitants became aware of the prices of pharmaceuticals, but this was not resulted in the radical decrease of the subsidy budget. The effect of the new subsidization system exerted on the price increase appeared already in April 1995, which was also resulted in the increase of the subsidization budget with the medicines entered in the positive list.

Table 6.2.16 Average prices per box. 1990-1998 HUF/box

	1990	1991	1992	1993	1994	1995	1996	1997	1998
National. HUF/box	43.4	62.1	76.0	89.5	116.2	164.4	210.9	256.0	299.0
Import. HUF/box	176.4	195.1	208.9	222.5	249.2	678.5	805.5	888.0	1026.0
National as % of import	24.6%	31.8%	36.3%	40.2%	46.6%	24.2%	26.1%	28.8%	29.1%
Import value index, %	100.0	110.6	118.4	126.1	141.2	384.4	456.4	503.2	581.4
National value index, %	100.0	143.0	174.7	205.8	267.3	378.0	484.9	588.6	687.5
Import price annual growth	na	10.6%	7.1%	6.5%	12.0%	172.2%	18.7%	10.2%	15.5%
National price annual growth	na	43.0%	22.2%	17.8%	29.9%	41.4%	28.3%	21.4%	16.8%

Source: Molnár, 1997 and Bogsch, 2000

Tables on the volumes and prices of consumption shows that the considerable increase in the average per box prices from 1994 to 1995 resulted in decline of the consumption of the medicaments in the same year. This shows that price sensitivity can be observed in consumption.

In international experiences, introduction of a *national recipe controlling system* might reduce the consumption of prescription medicines with 15-18%. Implementation of the national recipe controlling system has also taken place in Hungary accompanied with heated debates and rescheduling of many years. The high ratio of the prescription medicines shows that the drugs consumption is directly in the hands of the physician community, and thus the recipe controlling system also targets the changes in the habits of the physicians in prescribing the medicines. Therefore, the implementation of the recipe controlling system has generated both the antipathy and resistance of the physician community: their interests have suffered damages to a great extent due to the fact that their freedom in prescribing medicines has become more limited and thus restrictions were imposed on their role in the marketing of the medicaments.

As it was underlined when the features of pharmaceuticals were discussed, physicians and pharmacists (or the employees in the pharmacy) influence the medicine consumption of the patients. The physicians have a major role in making decision on what a medicine – in respect of its active ingredient content and reimbursement charge – they order for their patients as prescription medicine. As it was noted by Gulácsi-Matejka (1999), “it is true all over the world that a mortal combat is going on for the “pen” of physicians ordering the medicines between the manufacturers and the financing agencies. This question is raised in an especially sharp way in Hungary, because one of the roots of the financing problems of the medicine spending is the over-consumption of the medicaments” (p 315). Thus, the need of patients should be judged from a double aspect: from the aspect of the effect of the medicament and the aspect of the patient’s financial ability. The physicians exclusively on the recipes determined by the NHIF can order the prescription and the reimbursed medicines. The role of the pharmacies becomes more and more important in the non-prescription (OTC) segment. In this case, the employees of pharmacies consider the situation from a double aspect, like the physicians, when they offer medicaments to the

patients. From the pharmaceutical industry's point of view, setting up and managing the medical representative system have a very important role.

When patients make their (consumer) decision, they have to trust the judgment of physicians and pharmacists respectively, and as a final decision making factor, the price to be paid for the medicaments plays a role in their decision. There is a tendency that the price to be paid and the available and discretionary income are compared to each other. Surveys show that a part of the population could not take out the prescription medicines receiving support either (Kövessi 1997). However, there are no data available on how this phenomenon affects the complete pharmaceuticals consumption and how it relates to the reimbursement system.

6.2.4.2. Distribution: wholesaling and retailing of pharmaceuticals

It is the feature of the selling process of pharmaceuticals that it is under governmental regulations. The European practice's feature is that "... European drug distribution remains a non-harmonized and relatively in efficient two-tier operation: a highly consolidated wholesaling industry (with the combined sales of the top three Firms accounting to 75% of the Dutch, France, German and UK market) deals with an extremely fragmented pharmacy retail sector. / ... / So far, mail order for ethical drugs occurs only on a small scales in the Netherlands and Scandinavia; the EU is considering clearing mail order for the OTC market. Relaxing distribution may cause wholesalers to move forward into the pharmacy sector and as compile patient information as a stepping stone towards managed care". (Boscheck, 1996. p. 636). For the pharmaceutical industry retailing – similarly to every other product markets – has a key importance: the pharmacy owners can obtain such an information basis on pharmaceuticals consumption territory, which put them into a very advantageous bargaining position. According to those cited, this is why it means a milestone on the long-term how much the pharmacies can be integrated backward to wholesalers and forward to patients and what possibilities the governmental regulations grant them. As in all field of commerce, the electronic commerce represents one of the greatest opportunities and challenge here.

The *domestic wholesaling and retailing* have been separated from each other, pharmaceuticals can get to the consumers exclusively through the wholesalers and retailers. In Hungary, both the conditions on performing distributor activity in the pharma market (involvement in the commerce of pharmaceuticals) and the margins on the distribution are regulated. According to the medicine law, the provision of inhabitants with medicaments can be performed only by pharmacies meeting determined requirements, and the pharmacies are allowed to procure the marketed medicaments only from organizations holding pharmaceutical wholesaling license.

In the period between 1990-1996, the *privatization* affected the retailing in the pharma market most. The first step in the transition of the drug distribution channels was the change that from 1990 on it became possible to operate private pharmacies. The *privatization process of the pharmacies* was rather long and associated with debates, the privatization ideas having been formed since 1992 were resulted in closing the privatization of the pharmacies practically by 1997. The professional aspects (pharmacies

cannot get into private ownership without a pharmacist owner), insurance of the access by the inhabitants (pharmacies should continue to operate as pharmacies), the property right of the pharmacies (pharmacy centers versus self-governments) were three factors, in some cases conflicting with each other, which made the privatization process full of temper. As it turns out from the table below, not only the ownership has also changed between 1990-1998, and the public pharmacies have got into private property, but the number of pharmacies has increased by 25% at the same time. During this period, the number of pharmacists working in pharmacies has increased with 25% that is in relation with the regulations on privatization and pharmacy operation.

Table 6.2.17 Number and ownership of pharmacies, 1990-1998

	1990	1991	1992	1993	1994	1995	1996	1997	1998
State owned	1449	1455	1479	1457	1463	1075	388	0	0
Private	30	113	259	372	473	919	1613	1965	1972
In hospitals	27	30	35	38	38
<i>Total</i>	<i>1479</i>	<i>1568</i>	<i>1738</i>	<i>1829</i>	<i>1963</i>	<i>2024</i>	<i>2036</i>	<i>2003</i>	<i>2010</i>
Employed pharmacists	3390	3549	3392	3265	3306	3422	4104	4389	4789

Source: Statistical Office(KSH) yearbooks

In the same period, the operation of the pharmacies (see Law LIV, 1994, on the establishment of pharmacies and the individual rules on their operation), and the size of margins were regulated in a comprehensive way. The Minister of Health regulates in a decree the conditions on the distribution of pharmaceutical products and the maximum commercial margin allowed to be set. The regulation of the conditions on the distribution of medicaments can be justified with the special features of pharmaceuticals: proper professional and technical conditions should be available in commerce, especially in respect to retailing which are more stringent than in retailing other products. The professional conditions, rooms, necessary tools and opening hours belong to this. The Hungarian Chamber of Pharmacists and the National Public Health Center (ÁNTSZ) control fulfillment of these conditions. These mean retailing that, there are considerable barriers to entry.

There is a special segment in drug the retailing, the *institute pharmacies*. They provide direct patient care and pharma provision in kind to their patients and ethical drugs. All the hospitals belong to this segment, which provide medicaments in kind to patients during their hospital treatment owing to the existing health insurance practice, which is practically subsidized in 100% by the NHIF. The following table shows the pharma sales of the public pharmacies and the institute (clinical) pharmacies and their distribution of sales in 1996. As it turns out from the table below, the public pharmacies sell the majority of pharmaceutical products that is more than 80%.

Table 6.2.18 Sales in public and hospital pharmacies, 1996.

	Pharmacies	Hospitals	Pharmacies	Hospitals
			%	
Number of Pharmaceuticals	2467	2761	89.3	100
Sales on ex manufactures prices. HUF billions	88.8	18.4	82.3	17.7
Sales on boxes. million boxes	269.5	26.2	91.1	8.9

Source: Molnár, 1997

Note: Number of pharmaceuticals taken as 100 % in hospital sales. since they comprise the public drugs as well.

In the public pharmacies, a wider range of products can be marketed than in the wholesaling of the medicaments that is between certain limits the pharmacies rest upon more activities than the wholesalers. It is allowed for them e.g. to sell medical and healthcare products, hygienic products, and self-medication products. The more stringent governmental regulation in 1999 also affected the operation of the pharmacies. Contrary to the previous practice, the NHIF does not make any prepayment to procure the reimbursed pharmaceuticals, but the amount of reimbursements is transferred based on the actual sales afterwards. This may lead to temporary financing problems with the pharmacies, which, together with the burdens due to the repayment of the privatization credits, may cause serious cash flow problems (HVG, 1999).

Pharmaceutical wholesaling can be pursued only the permission issued by the National Institute of Pharmaceutics (OGY). In the wholesaling, too, the privatization was one of the most important processes in the period between 1989-1998. The pharmaceutical wholesalers were established by the privatization of the earlier pharmacy centers. In addition to the wholesalers, the distributors (sales representatives) and the pharmaceutical manufacturers are also entitled to perform wholesaling with their own products.

Table: 6.2.19.Sales of pharma wholesalers, million HUF, 1995-1998

	1995	1996	1997	1998
Hungaropharma	41158	43701	51396	57713
Pharmafontana	6512	23658	12817	19943
Phoenix Pharma	na	9311	17254	27533
Humantrade	na	9372	12790	16860
Medimpex	na	na	na	18813
Bellis Rt.	na	na	na	11891
<i>Total</i>	<i>47670</i>	<i>86042</i>	<i>94257</i>	<i>152753</i>
As % of the public pharma sales	43.9%	66.9%	60.2%	79.9%

Source: Figyelő Top 200 and KSH Statistical yearbooks

In the summary made public by the HVG in October 1999, eighty-four organizations were mentioned as the holder of the pharmaceutical wholesaler license with reference to the data of the Association of the Hungarian Pharmaceutical Wholesalers, of which 14-15 were held active. Considering the data and information made known in the Top200 publication of the Figyelő, inspite of this rather large number, the pharmaceutical wholesaling sector has become concentrated by 1998. According to the above table, the largest pharmaceutical wholesalers marketed the increasing ratio of public pharma sales.

The ratio of the six largest companies ranked by their annual sales has increased to nearly 80% by 1998. The following featured the individual companies.

The largest pharmaceutical wholesaler company, *Hungaropharma* Pharmaceutical Wholesaler Co. Ltd., was founded in 1993 and was in the property of the state (State Privatization Holding Co. Ltd.) at the end of 1998. In 1998, the company had a market share of 30% in the pharmaceutical wholesale trade corresponding to the annual turn over of HUF 57.7 billion. This company marketed the widest product range covering 4900 pharmaceuticals in 1998. This company is now before privatization.

Phoenix Pharma Pharmaceutical Trading Co. Ltd. was the second largest pharmaceutical wholesaler company. The company was established through the privatization of the Pharmacy Center of County Pest in 1995. Its owner is the Phoenix AG through the *Beteiligung GmbH*, which is the market leader pharmaceutical wholesaler in Germany, and with its sales of more than DEM 10 billion it is the second largest pharmaceutical wholesaler in Europe. The sales of HUF 27.5 billion in 1998 represented a 17.2% market share, which was an increase as compared to the same data in 1997, and due to this achievement this company came up from the third place to the second in Hungary. The company has further strengthened its position, because the *Beteiligung GmbH* also acquired the *Westpharma* Company, which had stakes in pharmacies, in 1999.

The third largest company in the pharmaceutical wholesale sector was the *Pharmaphontana* Pharmaceutical Co. Ltd. in 1998. The company started its operation in 1995, then the local-government of the capital sold its shores to *Naturland* Co. Ltd. in 1997. In addition to the pharmaceutical wholesaling, the company has traded in, of *Fitotéka* (self-medication) products and persuaded export and import of pharmaceuticals. In 1998, the company achieved a sales revenue of HUF 19.9 billion that corresponded to an appr. 14% market share, which is as much as to say that the company lost its second place on the list of wholesalers. Since that time, the company has declared itself insolvent and has been liquidated.

Medimpex Pharmaceutical Wholesaler Co. Ltd. got onto the Top200 list of the *Figyelő* as a new player, as the fourth largest firm in the market, in 1998. The company started its operation in 1997, it deals exclusively with domestic pharmaceutical wholesaling. The owners of the company are *Gedeon Richter* Co. Ltd. and *Egis* Ltd. Before 1998, the enterprise was the foreign trade company of the pharmaceutical industry. *Medimpex* has a 13% market share with its sales of HUF 18.8 billion.

The further two pharmaceutical wholesalers got on the Top200 list of the *Figyelő* in 1998 were *Humantrade* Pharmaceutical Wholesaler Ltd. with its sales of HUF 16.8 billion and *Belis* Co. Ltd. with its turn over of HUF 11.8 billion.

Table: 6.2.20. Owners` equity of pharma wholesalers, HUF million, 1995-1998

	1995	1996	1997	1998
Hungaropharma	11239	10318	11422	11485
Pharmafontana	5469	5804	3921	398
Phoenix Pharma	na	702	-1	971
Humantrade	na	528	549	1606
Medimpex	na	na	na	1886
Bellis Rt.	na	na	na	1291

Source: *Figyelő Top200*

Among wholesales, there were two, which did not make any profit before taxation in 1998. These were Phoenix Pharma Co. Ltd. and Pharmaphontana Co. Ltd. Considering the development of the owners` equity, which is the basis of further growth opportunities, it turns out that Pharmaphontana Co. Ltd. should face a serious challenge, because in 1998 it closed its second year with loss and its owners` equity was reduced from HUF 3.9 billion to HUF 308 million. The development of the owners` refers to danger in the case of Phoenix Pharma Co. Ltd., however, with respect to its owner, which is the market leader wholesaling company in Germany, this enterprise will supposedly be a player on the market on the long-term. The data and example of Phoenix Pharma Co. Ltd. and Pharmaphontana Co. Ltd. refer to the phenomenon that the accounting data can be interpreted and compared only in the case, when owners are also investigated. Further changes are expected to occur in the pharmaceutical wholesaling sector, because the privatization of Hungaropharma Co. Ltd. has not been completed yet.

Regulation of commercial margins is in relation to the price regulation of pharmaceutical products and through this it incites the pharmacies to operate with foreseeable consumer prices and to keep a proper assortment of the pharmaceuticals on the stock. The ex-manufacturer prices are the basis of determining the margins. In the period lasting till 30th June, 1999, the following margins were in force: in the case of pharmaceutical raw materials, the wholesale margin can be 20% of the ex-manufacturer price, while in the case of finished packed products, the margin can be, between the maximum of 16% and the minimum of 7%, of ex-manufacturer decreasing in parallel to the increase in the prices. Consequently, in the case of cheaper medicaments the margin of the pharmaceutical wholesaler is larger, while it is smaller with the more expensive products. This margin formulation method is also in force for the pharmaceutical retail dealers, where the maximum margin is 30% and the minimum one is 16%. From 1st July 1999 on, the wholesale margins were reduced to 5% as minimal key and to the maximum of 12%. There was no change in the retail margins (22/1992(VIII.19.)WM decree).

The changes in the regulations implemented in 1999 refer to the fact that the government held the wholesale margins high, while in retailing it ceased the practice of refinancing. Beside governmental regulations, the electronic commerce represents further opportunities in this field both in the B2B (business-to-business) and B2C (business-to-customer, i.e. between companies commerce however, in this latter case only in the segments of the OTC products.

Domestic distribution of pharmaceuticals is regulated both from the entry the sectors and from the size of the commercial margins. Among the processes taken place between 1989-

1999, the privatization was of key importance and the wholesaling sector is still before further changes. The intention of the government to manage drug budget was also asserted in the distribution, because the wholesale margins have been reduced as well as the practice of prefinancing has been ceased in retailing. The pharmaceutical wholesaling trade and retailing have appeared as a distribution channel at the end of the 1990s, which do not have a considerable bargaining power over the Pharmaceutical industry. In the field of the wholesaling trade, a heated competition can be observed among the wholesalers traders that is also increased by the situation that the pharmaceutical manufacturers and distributors, too, are allowed to pursue wholesaling activity. The reason for having discussed the issue on distribution in details was that the transition of the wholesaling and retailing has taken place in parallel to the privatization of the pharmaceutical companies in the first half of the 1990s and as it could be seen, the privatization of the wholesale sector has not been finished yet.

6.2.4.3 Competition in the pharmaceutical industry

In international comparison, Hungary has a considerable tradition in the domestic manufacturing of pharmaceuticals. This can be explained with the early start of the domestic pharmaceutical industry in accordance with the international tendencies on the one hand, and with the COMECON period on the other hand. From the 1950s on, the Hungarian pharmaceutical industry has been basically consisted of the following six companies: Alkaloida (currently ICN Hungary), Biogal, Chinoin, Egis, Human, Richter. Further on, the denomination of domestic manufacturer/company covers these companies. Pharmavit Co. Ltd., too, the success company of the 1990s, may be listed here, which was acquired by the Bristol Myers Squibb.

Table: 6.2.21 Market shares in 1990-1998. %

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Alkaloida	5.3	4.8	4.5	3.9	3.1	2.7	2.7	2.5	2.1
Biogal	18	17.4	14	11.2	8.4	7.1	6.2	6	5.1
Chinoin	16	14.5	13.1	10.3	8.4	8	8.1	7.5	6.5
Egis	17.7	18.5	15.1	13.1	12.4	12.4	11.3	10.2	9.2
Human	2.1	2	2.8	1.8	1.1	1.1	1.5	1.5	1.7
Richter	14.5	13.1	11	9.2	8.8	9.4	9.8	10.7	10.2
Other Domestic	0.1	0.3	1.5	3.6	4.5	4.1	4.2	4.4	4.2
<i>Domestic, total</i>	73.7	70.7	62	53	46.6	44.8	43.8	42.7	39
Import	26.3	29.3	38	47	53.4	55.2	56.2	57.3	61
Total	100	100	100	100	100	100	100	100	100

Source: Antalóczy. 1999.

In the period between 1990-1998, the market share of the domestic companies has considerably decreased. As it turns out from the above table, the domestic manufacturers' market share of 73.7% in 1990 lowered to 39%, and in parallel to this the role of the subsidiaries of non-domestic companies rose from 26.3% to 61%. On market shares of the foreign companies, only incomplete public information are available. The reason for this

may be that the majority of these companies distribute mainly the products of their mother companies; they do not carry out any production in Hungary. Among the domestic players, there are also subsidiaries of well-know multinational companies such as Novartis, Hoffman La Roche or Merck Sharpe and Dohme.

As it turns out from the table below, the pharmaceutical industry exported the increasing share of its production in the period between 1990-1998. The export of the pharmaceutical industry amounted to nearly 2% of the total domestic export during this period. Considering the ratio of the production for the domestic and foreign markets, it may be seen that 50% of the production in Hungary was exported in 1990 and this ratio was kept by the industry: in 1994, 49.9% of the production, while in 1995, 51% of the production was delivered to foreign markets, then this ratio increased to 60% by 1998. These data show that the pharmaceutical industry has been export-oriented.

Table: 6.2.22 Pharma sales by markets

	1990.	1991.	1992.	1993.	1994.	1995.	1996.	1997	1998
Export. HUF billion	31.347	28.754	28.934	33.774	41.157	51.722	66.626	100.234	113.658
Domestic. HUF billion	30.981	37.186	26.046	36.943	41.183	48.732	58.153	69.166	79.319
<i>Total</i>	<i>62.328</i>	<i>65.940</i>	<i>54.980</i>	<i>70.717</i>	<i>82.340</i>	<i>100.454</i>	<i>124.779</i>	<i>169.400</i>	<i>192.977</i>
Az export as % of total	50.29%	43.61%	52.63%	47.76%	49.98%	51.49%	53.40%	59.17%	58.90%

Source: KSH Industry statistics. Data comprise both finished drugs and substances

The data and the cited researches underline that it seems to be an important question from the aspect of the export capability of the Hungarian pharmaceutical industry how the domestic sales position of the domestic manufacturers develops. Preference of the products of the domestic pharmaceutical manufacturers by the domestic health care against the products with the same active ingredient may be a factor improving the efficiency of the national economy through transmissions at macroeconomic level: relying on domestic resources, with cheaper resources, using cheaper products, both the health care budget and the trade balance, can save considerable amounts. In their study, Bartlett-Goshal (2000) mention Ranbaxy, a pharmaceutical company in India, as such a successful example, which was also able to grow as a late starter. Not calling in doubt the international successes of the company and the professional competence of the management of the company, it should be mentioned that with this instance the authors forgot about the fact that the World Trade Organization (WTO) gave time to the Indian pharmaceutical industry till 2005 to change over to the product patent system. Based on process patent system, until that time the domestic companies may have advantage over the foreign competitor on the Indian market which means that they can produce and market original products of their competitors as reproduced products to the domestic market without consequences.

Fundamental changes have taken place in the Hungarian pharmaceutical industry in the 1990s. The most important changes can be summarized as follows:

The *responsibility of the domestic manufacturers for producing good* ceased which, in itself, allows a much larger ground to improve the rational operations of the domestic manufacturers. In 1994, the change over from the process patent system to the product patent system took place that required the reconsideration of R&D activity with the domestic manufacturers. Concurrently to this, *the reimbursement system and the distribution system have been transformed*: the systems have become more transparent on the one hand, and market economy conditions have been created on the other hand in the pharmaceutical industry.

Traditional markets have become uncertain and smaller: As consequence of the collapse of COMECON, the traditional big market of the Hungarian manufacturers have become uncertain and smaller. According to the data of Thököly (1994), the ruble account export in 1989 represented nearly 50% of the total export of the pharmaceutical industry. The export of HUF 14.8 billion in 1989 was reduced to its half in 1991 and its value of HUF 13.1 billion did not reach the 1989 level in nominal value in 1993 either. The collapse of COMECON affected the domestic pharmaceutical manufacturers, while the pharma import has been liberalized practically to a full extent that resulted in a sharp competition for the domestic manufacturers on their home market.

As a consequence of *import liberalization*, the number of products distributed on the domestic market has considerably increased that is the assortment of the pharmaceuticals has become wider. Import liberalization went with the change that the net exporter industry until that time has become a net importer industry in the Hungarian encoring. From the table below it turns out that the trade balance of the industry shows a considerable deficit. HUF 20.433 billion suffices in 1990 became a deficit of HUF 48.203 billion by 1998. Export grew to more than to its double between 1990 and 1998, while the import increased to more than its 11 fold in this period. The patent system changed in 1994, as a consequence of which the pharmaceutical industry changed over from the process patent system to the product patent system. The change over to the product patent system also meant among others that instead of the earlier license agreements the license holders started to distribute their products by their own.

Table: 6.2.23 Trade balance of pharmaceuticals, 1990-1998

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Export, million HUF	31347	37186	23435	22991	28312	36078	47253	70384	72964
Import, million HUF	10914	22423	23537	30243	47317	55982	70766	90657	121172
Balance	20433	14763	-102	-7252	-19005	-19904	-23513	-20273	-48208
Export base indexes, 1990=100	100,0%	118,6%	74,8%	73,3%	90,3%	115,1%	150,7%	224,5%	232,8%
Import base indexes, 1990=100	100,0%	205,5%	215,7%	277,1%	433,5%	512,9%	648,4%	830,6%	1110,2%

Notes: Data for 1990 and 1991 taken from industrial Statistics, from 1992 onwards SITC statistics

As it was earlier mentioned, the share of inland manufacturers reduced from the 73.9% in 1990 to 39% in 1998. The market share of the two largest domestic manufacturers, Egis and Richter, seems to be stabilized at about 10%. If the market shares are considered in volume, the loss of the share of the domestic manufacturers was smaller and took place at a lower rate. As it turns out from the table below, the share of the domestic manufacturers in the volume is 68%, which is more than the double of the same figure of imported pharmaceuticals.

Table 6.2.24 Domestic and import consumption indexes

	1990	1991	1992	1993	1994	1995	1996	1997*	1998*
Domestic boxes. m boxes	324	298.9	264.4	267.3	253.2	238.2	220.7	215.5	na
Import boxes. m boxes	43.1	52.1	51.3	61.1	71.2	68.2	74.9	83.8	na
Total	367	352.2	305.7	328.5	324.4	306.5	295.7	299.3	na
Domestic as % of Total	88%	85%	86%	81%	78%	78%	75%	72%	68%
Import as % of Total	12%	15%	17%	19%	22%	22%	25%	28%	32%

Source: Molnár (1997). 17 and * Bogsch (2000) and IMS

The *privatization of the domestic pharmaceutical industry* has practically finished. The privatization should be deemed as successful. The domestic manufacturers have got additional capital and professional knowledge from their new owners. The most important milestones of privatization are shown in the table below. The table shows that the majority of the domestic pharmaceutical companies have got into the property of professional investors. The only exception to this is Richter Co. Ltd. where the dominant owners of the company are financial investors.

Table 6.2.25 Privatization of domestic manufacturers at the end of 1998

Manufacturer	Date of	Date of Privatization	Major Owners and their stake
Alkaloida	October 1, 1991	August 30, 1996	ICN Pharmaceuticals Inc., USA, 67,1 %
Biogal	January 1, 1990	November 5, 1995	Teva, Israel, 97,8 %
Chinoin	January 1, 1990	February 24, 1991	Sanofi, France, 99 %
Egis	January 1, 1992	December, 1993	Servier, France, 51 %
Human	July 1, 1992	December, 1993	Novopharm, Canada 55,5 %
Richter	November 1, 1992	October, 1995	Financial inventors 56,9 %

Source: Antalóczy, 1999.

In her study summarizing the experiences with privatization, Antalóczy (1999) has pointed out that the government had no professional conception on the privatization of the pharmaceutical industry; the most important purpose was to conduct the privatization. Their management and the potential future owners formed the fate of the individual companies.

The subsidiaries of the multinational (global) companies started their operation in Hungary. From their mother companies' point of view, the majority of the foreign subsidiaries are to be deemed as sales force most important task of which is to distribute the products of their mother companies. This may also be concluded from the fact that

while the import of pharmaceutical products has considerably grown, the increase in domestic production and export was not so spectacular at all.

Table 6.2.26. Top ten companies at ex-manufactures prices, million HUF, 1995-1998.

	1995	1996	1997	1998
Richter Gedeon	6951	9544	12264	15192
Egis	9283	11005	11803	13511
Novartis (Ciba+Sandoz)	6634	7302	8259	10676
Chinoin (Sanofi)	5436	7168	7824	9406
Biogal (Teva)	5734	6478	7054	8373
Eli Lilly	2276	2767	3825	4852
Merck Sharp Dohme	989	1637	2801	4802
Pfizer	1384	2127	3200	4524
Bristol Myers (Pharmavit)	1738	2359	3319	3922
Schering Plough	1645	2467	3035	3879

Sources: IMS.

The above table shows the order of the 10 largest companies according to their sales to the Hungarian pharmacies. From this table it turns out that two domestic companies, Richter and Egis, are on the top. Novartis is behind them, but before the third largest domestic manufacturer, Chinoin. Among the 10 largest companies, five are local subsidiaries of multinational companies focusing on sales. The other five are such companies – Richter, Egis, Chinoin, Biogal, Bristol Myers Squibb – which may be considered as pharmaceutical manufacturers in Hungary.

The new entrants into the Hungarian market have introduced a very aggressive marketing practice not yet applied so far. They have made it routine as the first that the most important target points of the manufacturers and distributors to be influenced in order to stimulate their sales are the physicians and pharmacists. As in the case of the physicians and pharmacists, it is about a very strong professional marketing, it is very difficult to draw the line between the ethical and not ethical promotion of sales which is regulated by the rule 24/1997.(VIII.14.)NM in accordance with the law on the advertising of pharmaceutical products, accepted in 1997. This decree prescribes that only those with qualification of physician, dentist or pharmacist are allowed to perform medical representative tasks and the data of these persons should be reported to the National Institute of Pharmacy. When the new players entered, they recruited their staff from the underpaid physicians and pharmacists speaking foreign languages. According to the information available on the medical representatives (HVG 1997), Richter employed 70, Egis nearly 100 and SmithKline Beecham appr. 50 medical representatives, while the majority of the players had 5-15 persons with this task in 1997.

Among the foreign companies, data are available on **Novartis**. Novartis Hungary Ltd., is the third largest competitor on the market, it is before Chinoin in the order. The legal predecessor of Novartis, CIBA Hungary Ltd., started its operation in June, 1991 and continues its operation under the name of Novartis Hungary Ltd. after the merger of the mother companies in 1997.

The Swiss mother company of Novartis Hungary Ltd. is Novartis, which is the second most valuable company in Switzerland. Its sales totalled to USD 20.4 billion in 1998. Based on its market price, the Swiss mother company was the 11th most valuable company in the world on the Global Top 1000 list of Business Week in 1998, and it the 29th in 1999 (Business Week, 12th July, 1999).

Novartis Hungary Ltd. has a Hungarian language website (www.novartis.hu). From the information in the website, it turns out that the company has two large divisions: the health care products division and agricultural products division. Within the health care products, the distribution of the prescription medicines, non-prescription medicines and generic products are managed separately from each other. The company has its own medical representative network through which information are provided on their products to physicians, hospitals and pharmacies. It is emphasized on the website that the task of their own filing and registering department is to ensure the rapid entry of their products to the market. About the operational results of the company, the Figyelő Top200 publications provide information - there are no data relating to this in the company's website – because the company ranks into the 200 largest domestic companies based on its sales.

Table 6.2.27 Key figures of Novartis Hungary* million HUF, 1995-1998

	1995	1996	1997	1998
Sales	8536	10898	16085	20953
Pharma sales. %**	na	67.0	45.4	50.9
Export	366	315	307	573
Number of employes	193	198	233	228
Owners Equity	560	322	494	295
Profit before taxes	-223	-233	-186	na

Source: Figyelő Top 200

Notes: * until 1996 data are on CIBA Hungarian company, ** based on the previous table

According to the above data, the company has dynamically increased its sales, but it operated with loss between 1995-1997. Its sales revenue from pharmaceuticals contributed to the total sales with 67% in 1996 and with 50.9% in 1998. It may be presumably attributed to the financial loss that the owners' equity of the company decreased between 1995 and 1998. The Hungarian subsidiary contributed with USD 97.7 million – counted at the average exchange rate - to the sales of the mother company in 1998, which represented 0.48% in the total sales of Novartis. These data in themselves – not taking the mother company into consideration – are very difficult to be interpreted. The Hungarian sales of Novartis amounting to hardly 0.5% of the total sales of the company refer to the fact that the Hungarian subsidiary is not substantial from the Novartis' point of view. Based on the results before taxation, the Hungarian subsidiary cannot be evaluated, because the losses may be resulted from the initial expenditure undertaken in order to get the desired market share. Comparing Novartis Hungary Ltd. to the other Hungarian market players, I underline that it employs appr. 10% of the staff which is employed by Chinoin taking nearly the same position in the Hungarian market, and the amount of its owners' equity is 1-2% of that of Chinoin. This comparison refers to the fact that the main direction of the Novartis' activity is the sales.

The *domestic pharmaceutical manufacturers* were shocked by the liberalization of the pharma market from one day to the other (practically from 1993 on), the change over to the product patent system (from July, 1994 on) and losing the certain “socialist” markets due to the collapse of COMECON (in 1991). As a result of the adjustment to these challenges, the domestic manufacturers organize their **production and operation** fitted to the market economic conditions featured by sharp competition. Next to the import competition in their home market a sharp competition in their export markets, also stimulate them. As a result of the changes occurred in the first half of the 1990s, the domestic manufacturers, are evaluated by the rules of the market economy, their products are in competition with products of the multinational companies both in the domestic and foreign markets. They are also expected that they should sell their products at low prices in Hungary in order to enforce social values through this. This is enhanced by the fact that in the public opinion they are still “the” pharmaceutical companies. Changes and the market competition spurred the domestic pharmaceutical manufacturers to a cost-oriented behavior. Import competition made, the *domestic manufacturers* change their marketing activity, packaging their products and rationalization of their production. In the latter, it also took part that the responsibility for producing goods of the domestic manufacturers has ceased and the privatization has been started and finished. The new owners expect the profit usual in the pharmaceutical industry internationally, which means a very high pressure on the profitable operation.

With the local subsidiaries of the foreign manufacturers, the factors having effect on the costs develop in another way. The basis of pricing is the free on border (FOB) price on which the mother company has a decisive effect. It should be seen at this point that these prices reflects the relationship of the developed market economy and are adjusted to those. These prices, converted into Hungarian Forints, are much higher in many cases from the beginning than the prices of the pharmaceuticals with the same efficacy manufactured in Hungary. The local subsidiaries involved in the distribution in Hungary have also some influence on the prices, but their most important task is to generate a market (demand) for the products at the set prices. Their most important tools in this are the sales promotion and the communication policy. Because of the price formulation and the cost conditions behind, the prices of import pharmaceuticals have a considerable effect on the budget of the subsidization of medicaments with the disease groups where no medicine with proper therapeutic effect, manufactured in Hungary is available.

One of the largest long-term challenges for the domestic pharmaceutical producers is the **R&D**. Discontinuance of the process patent system practically existing till the middle of 1994, jointly with the privatization and import liberalization, have seriously raised the question on what the intellectual capacity and provision with equipment of the domestic research and development is sufficient for. In addition to this issue, the institutional background of R&D of the industry has also been questioned due to the changes occurred in the ownership. Before the transition, in the 1970s and 80s, the domestic pharmaceutical industry could deem several successful original Hungarian products as its own (Hollósi, 1998). In the meantime, R&D strategies of the pharmaceutical industry have also changed: innovation of the leader molecule and the pre-clinical studies require 3.5 years and USD 205 million, while the clinical studies 7.5-8.5 years and USD 99 million on the average (Based on The Economist, 1998 and Hollósi 1998). The developments in 1990s show that the chemical synthesis and discovering new molecules continue to be the strong point of

the Hungarian pharmaceutical producers. In the phase of the clinical studies of R&D, however, it seems that the pharmaceutical companies can accompany the selected leading molecules until receiving the permissions neither by themselves, nor relying on the domestic R&D basis. In R&D, the domestic and international research co-operations seem to be inevitably necessary just like concluding strategic alliances for the clinical studies and launch into the market (see Szilbereky, 1998 and Schön, 1998).

The pharmaceutical industry, which was always important from national economy's point of view, could keep this position, especially in respect to export and R&D, in the 1990s. In two fields, the incumbent pharmaceutical producers have dominant position independently from their ownership structure. These fields are domestic production and export. Investigating the domestic pharmaceutical industry in international context, it may be seen that three Hungarian companies, Richter, Egis and Chinoin, are among the ten largest companies in the region, and based on the data Richter has a good chance to become the leading pharmaceutical company in the region. The key question seems to be in this issue what results the company can reach in the field of R&D.

As a result of the discussed changes, the Hungarian market has become a multiplayer market in the early 1990s. According to a paper published in 1997 (Molnár, 1997., p. 16-17.), 188 companies in all were active on the domestic pharma market in the first half of 1997 of which as little as 23 companies gave work to more than 20 persons according to the records of the Central Statistical Office (KSH). The nearly 75% market share of the domestic pharmaceutical manufacturers, in terms of value, in 1990 was reduced below 40%. Considering the number of boxes sold, the first three Hungarian manufacturers (Egis, Richter and Chinoin) cover 55.2% of the market, which corresponds to a 29.2% market share in the value of sales. In the pharmaceuticals production and their export, however, the domestic producers continue to be in leading position, because these companies produce 90% of the domestic production and the same percentage of the export independently from their ownership structure.

6.2.4.4 Competitiveness of three domestic pharmaceutical producers

In this chapter, I analyze the performance and competitiveness of three leading Hungarian producers also reputed in the region. These companies are Richter, Chinoin, and Egis. The shares of Richter and Egis are quoted the Budapest Stock Exchange, thus further public information may be obtained regarding their operation.

Table 6.2.28 Shares of the three manufactures in industry sales revenue, 1994-1998

	1994	1995	1996	1997	1998
Richter	26.54%	27.54%	30.09%	31.03%	28.68%
Chinoin	22.04%	22.08%	23.60%	22.16%	20.80%
Egis	18.58%	19.72%	19.78%	14.85%	16.48%
<i>Total</i>	<i>67.17%</i>	<i>69.34%</i>	<i>73.46%</i>	<i>68.04%</i>	<i>65.96%</i>

Source: Figyelő Top 200 and KSH

Glancing at the above table showing the concentration of the domestic production, it may be seen that the three pharmaceutical producers play a leading role both in domestic production, where their share was 65.96% and in export, where their share was 73.77% in 1998. To paraphrase, it can be said that if business is up for the large pharmaceutical producers, then business is also up for the Pharmaceuticals export.

Table 6.2.29 Shares of the three manufacturers in the Hungarian pharma export, 1994-1998.

	1994	1995	1996	1997	1998
Richter	35.88%	36.20%	38.13%	36.63%	33.03%
Chinoin	27.83%	27.15%	28.31%	24.91%	24.27%
Egis	16.40%	19.72%	19.78%	14.85%	16.48%
<i>Total</i>	<i>80.11%</i>	<i>83.07%</i>	<i>86.22%</i>	<i>76.39%</i>	<i>73.77%</i>

Source: Figyelő Top 200 and KSH

The data on employment in the table below show that the three domestic manufacturers could jointly keep their position as employer in the pharmaceutical industry: 65% of the employees find their jobs here. Behind the overall picture, considering the sequence, there is no change, but considering the ratios, there is: the share of Chinoin and Egis has slightly decreased, while that of Richter has increased.

Table 6.2.30 Shares of the three manufacturers in the Pharmaceuticals industry employees, 1994-1998

	1994	1995	1996	1997	1998
Richter	27.15%	26.96%	29.81%	30.68%	30.67%
Chinoin	16.71%	16.15%	16.85%	16.61%	15.90%
Egis	20.81%	19.10%	18.61%	18.55%	18.10%
<i>Total</i>	<i>64.67%</i>	<i>62.21%</i>	<i>65.27%</i>	<i>66.02%</i>	<i>64.67%</i>

Note: Number of company annual employees / Total employees in the pharmaceutical industry

Before analyzing the profitability, the companies are briefly introduced according to the same structure. Firstly the privatization is mentioned which determines the basic opportunities in each company. Following this, their position in the domestic market, and finally their results in the external markets are discussed. This latter gives a picture on the international competitiveness of each producer.

Gedeon Richter Co. Ltd.

Gedeon Richter Co. Ltd. is one of the oldest companies of the pharmaceutical industry in Hungary. It has been operating since 1901. The company was named after Gedeon Richter who was the founder of the company. It was reorganized into a company limited by shares in November 1990, after the change in the political system. With respect to the fact that the company was oriented to the earlier socialist markets, after the collapse of COMECON it had serious problems in sales, which was also shown in the profitability. Thus the company closed the year of 1992 with a loss of HUF 1.463 billion. As it turns out from the table below, the share of Richter was the largest in the Ruble account export

among the domestic pharmaceutical producers, thus the collapse of COMECON affected this company to the greatest extent.

Table 6.2.31 Shares in the Ruble export in 1989.and 1992-1993.

	Alkaloida	Biogal	Chinoin	Egis	Reanal	Richter	Other	Total	HUF Billion.
1989.	5.90%	6.20%	20.10%	19.00%	1.50%	46.50%	0.80%	100%	14.8
1992.	0.86%	7.58%	18.50%	26.47%	na	45.66%	0.93%	100%	9.3
1993.	2.81%	5.03%	14.12%	20.97%	0.31%	56.70%	0.05%	100%	13.1

Source: Tököly (1994)

The year of 1992 resulted in a promising change in the life of the company. A new general manager, Erik Bogesch, and a new management was appointed, the main task of which was to prepare the privatization. Instead of debt consolidation, Richter asked, as an external aid, to receive tax holiday (Antalóczy, 1999, attachments No: 20 and 18) and elaborated a plan to improve the efficiency of the company. The elaborated corporate strategy outlined the necessity of focusing and increase of efficiency. The elements of improving the achievements of the company were as follows: improvement of financial management (more stringent credit policy, more efficient information system), decrease in the staff, clarification of the product portfolio and in parallel to this, obtaining new licenses, taking the sales on the ex-Soviet markets under self-control, and creating a marketing organization as a response to the increasing competition in the home market. The results of these changes could already be seen in 1993, because the company became profitable again in 1993.

Table 6.2.32 The Richter R&D spendings as % of its sales, 1993-1997

	1993	1994	1995	1996	1997
Percentage	8.3	7.0	6.1	5.7	5.5

Source: Antalóczy. 1999.. p.71.

The new strategy also treated the investments and R&D expenditure with special emphases. As a result of the new strategy, the company became suitable for privatization.

The company was privatized by and public offerings financial investors through the stock exchange. The ownership structure of Richter was as follows in May, 2000: foreign institutional and private investors 61.97%, State Property and Privatization Holding Co. 27.11%, management and employees 0.1%, other domestic institutional and private investors 9.53%, own shares 1.29%. 71.5% of the shares are outstanding.

Approximately 60% of sales revenue came from medicines in three therapeutic areas (central nervous system, cardiovascular system, gynecology). There are two leading products, Cavinton having effect on the central nervous system, which is an original product, as well as Ednyt, a reproduced blood pressure decreasing agent. In addition to the finished products, manufacturing of active ingredients is also part of the product policy of the company. In the product portfolio, the ratio of the reproduced and generic products represents nearly two-thirds.

Distribution of sales according to geographical relations shows that the share of the Hungarian market is appr. one-third. Due to the impairment of the CIS market in 1998, there was a change in the export markets. The nearly one-third ratio of the CIS market was reduced and in parallels to this the share of the Polish and US market increased.

Table: 6.2.33 Performance of Richter after its privatization

	1994	1995	1996	1997	1998
Sales, HUF million	21854	27664	37541	52568	55345
Export, HUF million	14767	18723	25403	36714	37540
Number of employees	4789	4684	4680	4657	4732
Owners' equity, HUF million	27275	33057	42783	72449	85073
Operating profit, HUF million	5170	7191	9964	16569	13277
Earnings before taxes, HUF million	4294	7749	12240	19492	16824

Source: Figyelő Top200

According to the Top200 publications of Figyelő, Richter was among the 10 largest Hungarian companies based on its sales and the number of employees in the second half of the 1990s. The year of 1998 resulted in a breakage in the annual increase rate of the company due to the impairment on the CIS market, where Richter was the largest foreign supplier with its 10% market share. In addition to the CIS market, the Polish and Romanian markets are also important external markets for the company. In Romania, the company acquired the majority share in the S. C. Armadica company. Richter is active due to its a distribution network on the CIS market, where it continues to hold a dominant position. (Source: Figyelő Top200. and www.richter.hu)

Chinoin Co. Ltd.

Chinoin Co. Ltd., too, is a player with a well-established name in the Hungarian pharmaceutical industry, it has been operated under the name of Chinoin since 1912. Among the pharmaceutical companies, the privatization of Chinoin took place in 1991 as the first. Following the privatization, measures affecting the efficiency of the company were introduced which were carried out in parallel to the integration of the company into the organization of Sanofi, the new owner.

The owner of Chinoin, the French Sanofi, is considered a new player in the international pharmaceutical industry, it was founded in 1973 and since 1980 it has been listed on the Paris stock exchange. Sanofi the owner of Chinoin, got on the list of the top 15 foreign direct investors in Hungary in 1998, because Sanofi invested USD 220 million in total in the Chinoin till the end of 1998.

Following the privatization, measures affecting the efficiency of the company were introduced in the field of financial management, human resource management as well as in the field of the rationalization of the operation and product portfolio. In the field of R&D activity, the chemical research basis gave the main attractiveness of Chinoin, which was rationalized, to a great extent. R&D costs on sales have been increased, it were 6% in 1990, which was the year of privatization, 8% in 1992, 10% in 1995 (Antalóczy, 1999), 9% in 1997, 10% in 1998 according to the Top200 publications of Figyelő which means that the company has increased its R&D activity.

The largest reconstruction has been carried out in the marketing. Chinoin has been integrated into the marketing organization of Sanofi, their products are sold by the marketing channels of Sanofi in the foreign markets. There was a change on the top of the company in 1998, because Philippe Besse replaced György Miklós, who was nominated concurrently to the privatization, in the post of the CEO.

Table: 6.2.34 Performance of Chinoin after its privatization

	1994	1995	1996	1997	1998
Sales, HUF million	18147	22177	29442	37533	40131
Export, HUF million	11456	14042	18862	24965	27580
Number of employees	2948	2807	2645	2521	2454
Owners' equity, HUF million	17761	20535	20718	26454	27162
Operating profit, HUF million	3934	5307	6185	8935	8138
Earnings before taxes, HUF million	4028	6364	8296	8984	7482

Source: Figyelő Top200

Chinoin is one of the dominant players in the market of the non-prescription products. In addition to pharmaceutical products, Chinoin is also a key player in the market of the plant protection agents. Among its export markets, those in the surrounding countries are the largest ones.

Egis Co. Ltd.

Egis was created through the merger of the Swiss owned Wander Co. Ltd. and other smaller nationalized private pharmaceutical companies in the course of the nationalization in 1948.

Egis has been privatized in two phases. In the first phase, the company was introduced to the stock exchange and financial investors (EBRD as a dominant owner) were drawn into, then in the second phase, in December 1995, professional investor was drawn into through selling the shares of financial investors to a professional investor (to NatWest through acquiring the shares of EBRD and State Privatization Agency). The ownership structure of the company was as follows in May, 2000: Servier 50.91%, foreign institutional and private investors 43.25%, domestic institutional and private investors 5.76%, management and staff 0.08%. 49.01% of the shares of the company were outstanding.

The management of the company has played an active role in the preparation and conducting of the privatization from the beginning to the end and since that time its role has also been decisive. The CEO of the company is Dr. István Orbán who assumes the presidency of the Hungarian Pharmaceutical Manufacturers Association at the same time. The main strategic purpose of the company squared with Servier is that Egis should also become an internationally competitive generic firm (Antalóczy, 1999, p. 70).

The French Servier was established in 1954. In the 1990s, the company formulated two strategic objectives: expansion in the East-European region and rapid expansion in the market of generic products (Antalóczy, 1992., p. 62). Egis seems to have met both strategic objectives. It is the 27th pharmaceutical company in the world at present; it earned a sales of FFR 10 billion in 1998, 70% of which resulted from international sales. Servier defines itself as a research-based pharmaceutical company. It spent FFR 2.2 billion on 240 that corresponded to 22% of its annual sales, in 1998. The research-oriented nature of Servier has also been shown in its sales distribution 81% of its total sales resulted from 8 products of the company. The company operates in 130 countries with 70 subsidiaries; it has subsidiaries, in addition to Hungary, in Poland and Russia in the East-European region, as well. (Source: www.servier.fr.)

Considerable changes occurred in three fields of the operation of the company. In R&D, the ratio of original product researches was reduced, the development activity for generic products increased, thus so-to-say creating a division of labor between Servier and Egis.

Table: 6.2.35 The Egis R&D spendings as % of its sales. 1993-1997

	1993	1994	1995	1996	1997
Percentage	7.2	8.8	8.6	8.7	7.7

Sources: Antalóczy. 1999. p.71.

Adjusted to the new profile, the field of marketing also underwent a considerable development. The earlier insufficient development of the marketing is featured by the fact that it was the only area where a professional from the mother company was appointed. The third field was the change in the market orientation where the aim is to protect the sustainable market positions in the domestic market and to strengthen the market positions in the target segments in East-Europe and in the western markets.

Table: 6.2.36 Performance of Egis after its privatization

	1994	1995	1996	1997	1998
Sales, HUF million	15302	19813	24687	25159	31810
Export, HUF million	6751	8856	11068	15234	16744
Number of employees	3671	3319	2921	2816	2793
Owners' equity, HUF million	18603	22876	27863	33973	39739
Operating profit, HUF million	3015	4035	5011	5561	4726
Earnings before taxes, HUF million	2546	4905	5618	6274	5381

Source: Figyelő Top 200

Nearly 80% of sales of the company come from selling finished pharmaceutical products and appr. 20% from the sales of active ingredients. In the product portfolio, the ratio of generic products was 73%, that of the license products was 25% and the share of the Egis' own pharmaceuticals was 2% in 1998. In its exports, the greater emphasis was on the Central-East-European regions in the 1990s. Beside Servier, Egis acquired an ownership share in the Polish company, Anpharm in 1997 and it operates with its own subsidiaries in the US, Czech, Slovak and English markets. The distribution of sales according to geographical relations shows that the major market of the company continues to be the Hungarian market, however, its market share lowered below 50% in 1997. Among the export markets, beside the CIS and Central-East-European region the share of West-Europe, North-America and Japan have been increased since 1997.

Conclusions on the adjustment of companies

In the privatization of the three companies, the management had influence on the way of privatization and the selection of the new owners. There was no change in the person of the number one manager of Richter and Egis following the privatization either. The management of these companies was active in the Hungarian pharmaceutical industry earlier, too, and they had a considerable part in the increase of the efficiency of their companies.

Attractive ness of the companies was given by the international success of their original products in the 1980s and their chemical research basis.. The original products were attractive especially in the case of Richter and Chinoin. The research basis and R&D activity as far as the privatization proved to be important in the field of the development of generic products in companies with professional inventors. Professional investors matched the, R&D activity of the acquired companies with R&D activity of their own. The research for original products is a key issue for Richter with respect to the fact that the major owners of the company are financial investors.

In the course of the privatization, two factors impelled the companies to restructure their operation: of COMECON and the import competition in their home market. Both areas

stimulated companies to create their marketing operation missing until that time, especially in the field of sales force and sales promotion. The professional owners provided the most amount of support to their subsidiaries in these fields. Beside the creation of their medical representative networks, Richter and Egis also hold wholesaling trader subsidiary.

Among the companies, Richter has the greatest freedom in its strategy formulation because its ownership structure. It goes on its own individual way: it has kept its bridgeheads in the eastern markets and strives to strengthen its positions there. The company operates as a potential leading pharmaceutical company in the region and the success of this is fundamentally influenced by the success of R&D activity.

It seems that the three companies pursue three different strategies. Beside the generic and non-prescription medicines, Chinoin has been diversified into the manufacture of plant protection agents still in the 1970s, where it is a leading player in the Hungarian market. Egis has moved toward the manufacturing of generic products and as a company like that it is one of the most important subsidiaries of its owner (mother company) in the region. In international comparison, Richter is a small pharmaceutical producer, which should carry out a highly focused research activity so that it could also be successful on its own on the long-term.

After the introduction of companies, I analyze the profitability of companies based on data available from the pharmaceutical industry and companies. If the data in the table below are considered, it turns out that the decrease in the number of employees was the most remarkable with Egis, where the staff was decreased with 24% as against 1994, the same data is 17% with Chinoin, while in the case of Richter it is as little as 2% it can be explained by the fact that with Egis a considerable outsourcing has taken place. Consequently, it is worth underlining at this point that Richter could reach the improvement in its results practically with the same number of employees.

Table: 6.2.37. Growth of employment, 1994-1998.

	Chain indexes				Changes to 1994
	1995	1996	1997	1998	
Industry average	98.52%	90.29%	96.74%	101.67%	-12.7%
Richter	97.81%	99.91%	99.51%	101.61%	-1.2%
Chinoin	95.22%	94.23%	95.31%	97.34%	-16.8%
Egis	90.41%	88.01%	96.41%	99.18%	-23.9%

The table below shows the development of sales per capits. It may be seen that the per capita sales grew as compared to 1994 with the Egis to the greatest extent, to its 2.7 fold, but as it may observed in the previous table, the decrease of employment affected the most people with this company.

Table: 6.2.38. Sales revenue per capita HUF billion, 1994-1998

	1994	1995	1996	1997	1998	On 1994 price
Pharmaceutical average	4.668	5.781	7.953	11.162	12.507	267.9%
Richter	4.563	5.906	8.022	11.288	11.696	256.3%
Chinoin	6.156	7.901	11.131	14.888	16.353	265.7%
Egis	4.168	5.970	8.452	8.934	11.389	273.2%

If the data of the individual companies are compared to the sales per capita in the pharmaceutical industry, then Chinoin may be considered to be the most efficient company. With this company, the per capita sales were 30% higher than the average of the pharmaceutical industry every year.

Table: 6.2.39 Sales revenue per capita as % of pharmaceutical industry, 1994-1998

	1994	1995	1996	1997	1998
Richter	97.75%	102.17%	100.86%	101.13%	93.52%
Chinoin	131.86%	136.67%	139.96%	133.39%	130.76%
Egis	89.29%	103.26%	106.27%	80.04%	91.07%

I also analyse the profitability of companies by calculating the return on sales and return on equity ratios. According to the ratio of earnings before taxes/sales, Richter was the most profitable domestic manufacturer from 1996, with an index exceeding 30% in all the three years.

Table: 6.2.40 Return on sales. 1994-1998

	1994	1995	1996	1997	1998
Richter	19.65%	28.01%	32.60%	37.08%	30.40%
Chinoin	22.20%	28.70%	28.18%	23.94%	18.64%
Egis	16.64%	24.76%	22.76%	24.94%	16.92%

Note: $ROS = \text{Earnings before taxes} / \text{Sales}$

Return on equity shows a picture on the profitability from the owners' point of view. I have investigated the profitability on equity as compared to the operational profit and the profit before taxes. From the operational profit's point of view, the basic activity and operation of companies have a special emphasis, while the profit before taxes put the operational efficiency of the total company in the limelight.

Table 6.2.41 Return on equity 1, 1994-1998

	1994	1995	1996	1997	1998
Richter	18.96%	21.75%	23.29%	22.87%	15.61%
Chinoin	22.15%	25.84%	29.85%	33.78%	29.96%
Egis	16.21%	17.64%	17.98%	16.37%	11.89%

Note: $ROE = \text{Operating profit} / \text{Owners' equity}$

In respect of the operational profit on equity, Chinoin showed the best results with a value of nearly 30% between 1996 and 1998. Investigating the profit on equity before taxes. it

may be seen that the data of companies are regularly higher than the data calculated on the basis of the operational profit.

Table 6.2.42 Return on equity 2, 1994-1998

	1994	1995	1996	1997	1998
Richter	15.74%	23.44%	28.61%	26.90%	19.78%
Chinoin	22.68%	30.99%	40.04%	33.96%	27.55%
Egis	13.69%	21.44%	20.16%	18.47%	13.54%

Note: ROE = Earnings before taxes/Owners' equity

From the tables on financial *performance of the largest domestic manufacturers*, the following conclusions may be drawn: The three largest companies, Richter, Chinoin and Egis have continuously increased both their production and export between 1994 and 1998. Increase in their operational efficiency is marked by the fact that the value of the operational profit has increased to more than the double with all the three companies.

Figyelő Top200 published a comparative analysis on the comparison of efficiency of individual industries of companies got to the Top200 list and the industries of the USA and Great Britain with the aid of CA-IB at first in 1997 and never since that time. The data are shown in the table below. From the data, it is worth investigating the operational margin, margin before tax and ratio on the earnings before taxes on equity.

Table 6.2.43 Pharmaceutical financial ratios, 1997

	Sales per capita. HUF million	Operating margin %*	Pretax margin. %.**	ROE. % ***
Richter Rt.	12.3	29.1	35.9	27.7
Chinoin Rt.	14.9	23.8	23.9	34.0
Egis Rt.	10.4	19.1	21.5	18.5
Pharmavit Rt.	28.3	13.3	10.8	30.8
ICN Magyarország Rt.	6.3	12.0	6.3	9.0
Humán Rt.	11.8	6.5	8.3	11.3
Top200	14.1	17.3	17.8	21.9
USA	49.9	24.8	23.0	52.2
Nagy-Britannia	45.6	27.6	26.7	109.6

Source: Figyelő Top200 (1998.)

Notes: * Operating margin = Operating profit/Sales, ** Pretax margin = Earnings before taxes/Sales, *** ROE = Earnings before taxes/Owners' equity

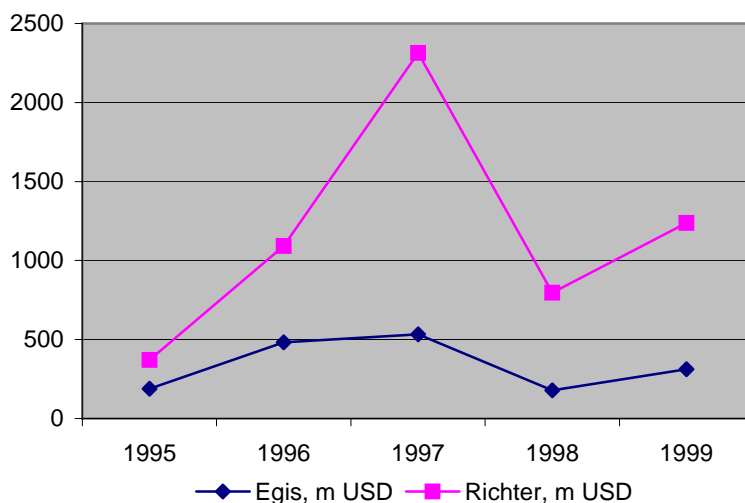
Investigating the ratios on the operational margin compared to data of the pharmaceutical industry of the USA and Great Britain belonging to the leading pharmaceutical industry of the world, it turns out that Richter produced a value above the average value of there in this field, while the Chinoin's value was slightly below, and that of the other companies was well below these data. Considering the operational margin, Richter also exceeded both the US and English average, while Chinoin exceeded the US average, but was below

the English average value. In this respect, the ratio of Egis is closer to the international data. Considering the ratio of return on equity, the picture is less flattering, because the performance of all domestic companies was below the US average, which is amazingly high, 52.2%, not speaking about the English data which was 109.6% in 1997. The ratios of the operational margin and the margin before taxation suggest that the three largest domestic companies, Richter, Chinoin and Egis, perform around the international average or above it, respectively.

In the chapter 6.1, I compared the return on sales of the three domestic producers to that of global companies found on the list of the Business Week and the largest companies in the region. Those data showed that based on these ratios the domestic producers are among the best ones. Beside the data flattering in the international comparison, however, we should not forget about the size of the domestic companies. As I have referred to it, the total production value of the domestic pharmaceutical companies did not reach USD 1 billion in 1997.

Finally, I speak about the performance of Richter and Egis on the stock exchange. As I discussed it in the above, the two pharmaceutical producers are the leading players of the Hungarian pharmaceutical industry; their operational efficiency has been considerably improved in the 1990s. In international comparison, however, these are small companies; their annual sales are only a few hundred million USD. Is it possible at all and how is it possible to summarize the international competitiveness of these companies? To answer this question, I decided for investigating the development of the capitalization of Richter and Egis on the stock exchange. Both companies are listed on the stock exchange, and their data may be traced back until 1995. The stock exchange capitalization of both companies shows that the capital market appreciates the achievements of these two companies.

Figure 6.2.3 Market capitalization of Richter and Egis, 1995-1999



*Notes: Market capitalization = Number of shares * Closing price at the end of the year, at KSH annual average USD prices*

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25/1997(VIII.22.) NM rendelet a társadalombiztosítási támogatás nélkül forgalmazott gyógyszerekről (*Decree on sales of non-subsidized drugs*)

3/1995(II.8.) NM rendelet a gyógyszerek rendeléséről (*Decree on prescription*)

56/1996(XII.27) NM rendelet A gyógyszer kereskedelmi árrések módosítása (*Decree on drug commercial margins*)

8/1994(IV.22) NM rendelet a társadalombiztosítási támogatással rendelhető gyógyszerek árához nyújtott társadalombiztosítási támogatás igénybevételének és elszámolásának szabályairól (*Decree on access and accountancy on drug subsidies*)

9/1982(VII.21.) EÜM rendelet az Országos Gyógyszerészeti Intézetéről (*Decree on OGYI*)

91/1993(VI.9.) Kormány rendelet az Országos Nyugdíjbiztosítási Főigazgatóság és az Országos Egészségbiztosítási Pénztár, valamint igazgatási szerveik létrehozásáról és ezzel összefüggő egyéb intézkedésekről (*Decree on setting the Pension and Health Funds*)

Ideiglenes megállapodás a kereskedelemről és a kereskedelemmel kapcsolatos ügyekről egyrészt a Magyar Köztársaság másrészt a Európai Gazdasági Közösség és az Európai Szén- és Acélközösség között - hatálybalépett: 1992. 03.01-jén (*Agreement on trade and related issues between the Hungarian Republic and EU*)

203/1999. (XII.26) Kormányrendelet a kötelező egészségbiztosítás ellátásairól szóló 1997. Évi LXXXIII. Törvény végrehajtásáról rendelkező 217/1997 (XII.1.) Kormányrendelet módosításáról (*Decree on universal basic health care provisions*)

37/2000 (III.23.) Kormány rendelet az emberi felhasználásra kerülő gyógyszerek gyártásának személyi és tárgyi feltételeiről (*Decree on drug manufacturing, MRP*)

6.3. Modifications of competitiveness of the pharmaceutical industry

In the 6.2 Chapter I described and analyzed the changes, which took place in the Hungarian pharmaceutical industry. In this chapter I summarize the competitiveness of the pharmaceutical industry with two different approaches. One of the approaches, adequate to what was said in Chapter 5., is the Porter diamond model, the other one is the approach trying to catch more dimensions of competitiveness which can be found in my Ph.D. thesis. At the end of the 5.4 Chapter I made the following hypotheses concerning the pharmaceutical industry:

1. The pharmaceutical industry is a global industry. The Hungarian pharmaceutical industry faced up to the fact within its own markets during the 1990s. With the appearance of globalization the competitiveness of the pharmaceutical industry was not declined.
2. The opportunities of the export-oriented pharmaceutical industry. The characteristics of global industries, forces of global competition, and the strategies of global enterprises influence the pharmaceutical industry's opportunities.
3. The pharmaceutical industry belongs to the industry portfolio of the Hungarian economy, which promotes both the competitiveness, and achievements of the national economy due to on its competitiveness in the national and foreign markets. Besides export-orientation, R+D demand contributes to the pharmaceutical industry's being a progressive industry in the national economy.

Statements about the above hypotheses are summarized in 6.3.3 sub-chapter.

6.3.1. Competitiveness of the pharmaceutical industry on the basis of Porter's diamond

First, I summarize the determinants of the Hungarian pharmaceutical industry's competitiveness between 1988 and 1998 on the basis of the Porter (1990) diamond model. This model turns the attention to determinants, which influenced the international competitiveness of enterprises located in Hungary.

Factor conditions

1. The Hungarian pharmaceutical industry has remarkable, nearly hundred-year-old traditions. These traditions could be found at all of the three closely investigated pharmaceutical companies.
2. Keeping in mind the value chain of pharmaceutical companies, the international success is influenced by two basic activities: research and development, and marketing.
 - Traditions and strengths are in chemical research. There is a disadvantage in connection with R&D that is in the eagerly growing biological research there are no traditions, and there are few well-trained professionals. The experience accumulated in reproductive research meant an advantage for the companies in the development of generic products. Before the privatization the companies entered on the international market with successful drugs, which was an attracting factor for professional investors in the course of privatization.

- Marketing fell far behind all of the other factors before the political changes. The greatest leap forward has happened in this field since then. The companies created and operated their sales networks, and their home experience is an advantage in their international markets also. We should mention the former COMECON market connections, because Hungarian pharmaceutical companies had experiences and local knowledge on the former COMECON markets first of all. The obtained experiences and connections gave advantages for the companies in the former socialistic markets when they reorganized and stabilized their trade relations after the collapse of COMECON. These advantages have been or are still being realized in the privatization, and by the making use of the present international sales opportunities. It seems that besides the home market, these markets can contribute most to the growth of the companies. However, it carries a considerable risk, which makes the pharmaceutical companies careful, especially after the 1997 crisis of CIC countries. As a consequence, in the case of Richter and Egis the developed countries' markets (EU and USA) are gaining a more important role in their sales.
3. In connection with the value chain we should also emphasize technology. The exporting Hungarian pharmaceutical companies followed the GMP directions from the middle of the 1970s. The 1999 legal regulation brought a slight support in competitiveness from the economic diplomacy, because the regulation made the existing practice legal, and made it even more acceptable from the side of foreign governments and international organizations.
 4. There was a shift in the whole of the pharmaceutical industry towards a more qualified work force. We do not have detailed data, but it is probable that it was mostly caused by strengthening the sales activity, and less caused by the boom of R+D activity.
 5. The opening up the stock exchange and the operation of capital market made a good opportunity for the companies to gain resources also through the stock exchange. (It was a significant factor especially in the case of two companies, Egis and Richter, during their privatization.) The efficiency indices of the companies show that companies can meet the expected efficiency terms.

Demand conditions

1. The Hungarian consumption of medicines corresponds to the country's development in international comparison, in the forming of which the government has a decisive role by influencing the size and structure of demand. The beginning of the 1990s was characterized by flood of the imported drugs, which led to the use-up of approved medicine subsidies. At the end of the 1990s the Hungarian government put more and more pressure on the pharmaceutical companies through the subsidization system to reduce prices and provide proper drugs.
2. The government has the biggest influence on shaping the size of demand through the subsidization system. From the side of the government we can see the intention to comply with the budget. It strengthens the home market competition.
3. In the marketing channels of drugs there was also privatization, but because of margin regulation the governmental influence remained significant, and the government's budgetary considerations also touches this segment. It would mean a challenge for the pharmacies to finance their operation. In wholesale trade it would

influence the outcome of the privatization and consolidation process. The marketing channels of drugs operate like distribution channels, as for the pharmaceutical industry. Its influence on pharmaceutical companies is not noteworthy.

4. Keeping in mind the size of the home market, the prospects of the pharmaceutical companies' traditional East European markets, especially political risks and GDP growth, considerably determine and influence the home manufacturers growth prospects.

Firm strategy, context and rivalry

1. The increased imports increased competitiveness significantly in the national market, and the field of competition was marketing, and within it sales.
2. The privatization created new ownership structure in the Hungarian pharmaceutical industry. Most of the national manufacturers became the property of professional investors, and to some extent these manufacturers integrated into the parent company. A few financial investors also has stake. The transformation of ownership structure significantly contributed to the improvement of competitiveness.
3. The management played an important role in managing the privatization too, and preserved their freedom in shaping strategies of national manufactures. In our opinion the success of privatization depended to a great extent on the management of pharmaceutical companies that could push the companies onto the way, which could found their operations in market economy.

Related and supporting industries

1. The institutional system of Hungarian pharmaceutical research was disintegrated. We cannot talk about any operating cluster in this field.
2. Concerning Richter and Egis, cooperation could be seen in one field that is in wholesale trade. Medimpex was restructured, which managed the former pharmaceutical wholesale trade. Concerning the present legal regulation, the integration towards pharmaceutical wholesale trade can increase the competitiveness of home manufacturers even more.

The role of the government

1. The role of the government as the owner in pharmaceutical industry practically ceased by 1996. This led to a situation in which the government could only contribute to the increase of competitiveness of national pharmaceutical manufacturers by creating a stimulating.
2. The government backed up the operation of privatized companies by tax brakes. Tax brakes were given even for both professional and non-professional investors. Tax brakes are over after 2000 that could contribute to the consolidation of the pharmaceutical enterprises' market position. By Antalóczy's case study (1997, p.44) the three investigated companies, Richter, Chinoin and Egis received and still enjoy the same company tax breaks.
3. The government with its international, EU conform regulation went partly after, partly to meet the practice of the pharmaceutical enterprises. Concerning regulation pharmaceutical industry is mature joining the EU.

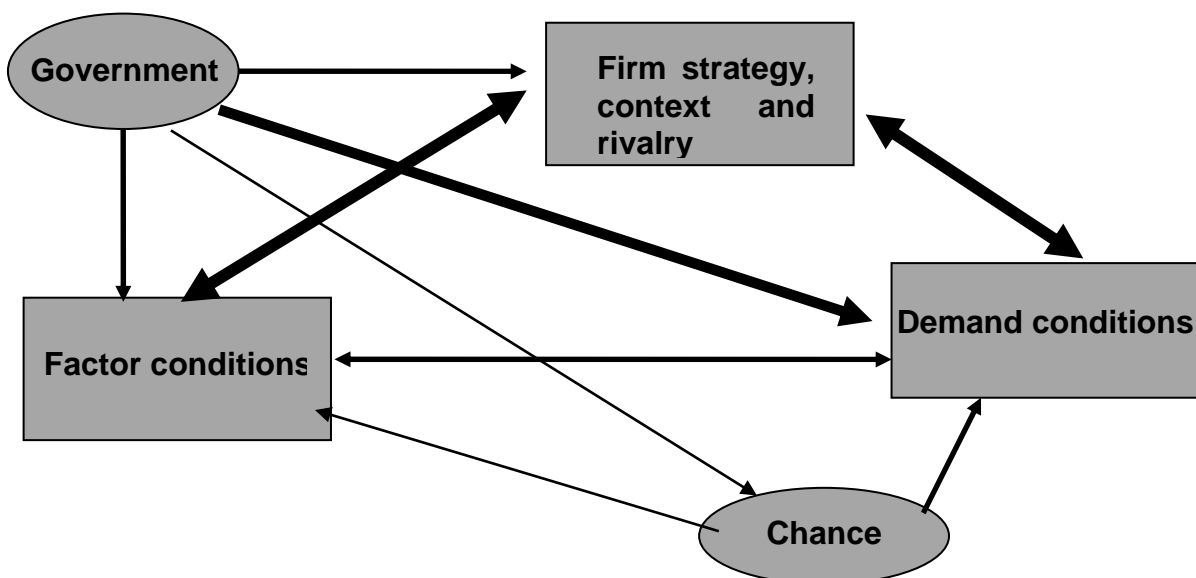
4. The role of the government is decisive by forming the system of subsidization of drugs. Managing the subsidization funds became central at the end of the 1990s and it heated up the competition among enterprises. Enforcing the government's price sensitivity could contribute to the Hungarian drug preference with the same compound against imported drugs. The government could be encouraged not just by managing the subsidization funds but by the improvement of pharmaceutical products' trade balance as well.
5. Among the intentions of the government there is the emphasized role of clusters and R+D, which is mentioned many times (e.g. Széchenyi Plan). But in this field rather wishful thinking than action programs can be found. By Porter's (1998) logic, clusters could be created only by organizing them around an enterprise or a product group. Certain segments of the pharmaceutical industry offer an opportunity to take a step ahead in this field.

Chances

1. The most important phenomenon, which could not be influenced by enterprises, was the build-up of market economy between 1989 and 1998. Its first and most radical result was brought by the collapse of COMECON, which influenced one third of the Hungarian pharmaceutical companies' markets.
2. We should mention among in the opportunities of joining the EU, which started with a significant legal harmonization. From the point of view of pharmaceutical industry, joining the EU does not promise notable market increase, but it could mean an opportunity to join EU research programs and projects.

On the basis of the above summary I sketch the connections existing among Porter's diamonds' certain elements on figure 6.3.1. As it turns out I emphasized four determinants: the government, firm strategy, structure and rivalry, and demand conditions.

Figure 6.3.1. Determinants of the competitiveness of the Hungarian pharmaceutical industry



The most important one from those four is the government's role, considering that it greatly influenced the rivalry (e.g. import liberalization, subsidization system), strategies (e.g. changes ownership structure) during the creation of market economy. By setting drug prices the government has a big influence on demand. Here we can notice the role of a price sensitive buyer in the steps of government, at least in price regulation past few years.

The firm strategy, context and rivalry determinant underwent the most remarkable changes in the period of 1989-1999. The industry import generated competition and privatization played a prevailing role in that.

The demand conditions depend on the national competition and enterprise strategies (with which products and segments, on which geographical markets the manufacturers compete). The demand is influenced the most by the drug subsidies, which, as a whole, is favorable for lower priced medicines.

We take two factors out of the chances. The first is the collapse of COMECON, and the other is joining the EU. This determinant has influenced the demand conditions, competition, and the behavior of the government.

6.3.2 Competitiveness of pharmaceutical industry by a multilevel approach

In the following I summarize the most important statements about the competitiveness of pharmaceutical industry by a multilevel approach outlined in the Chapter 5.3.2.

The level of products

The Hungarian pharmaceutical industry is competitive first of all in its prices of products with the same compound. The product portfolios of enterprises seem to be dominated by generic, licensed, and reproductive products, and there are less original products. The original drugs for endemic diseases can mean an advantage for the companies in competition in countries with similar circumstances. The companies developed much in adopting marketing and sales methods. The international standards on products' manufacturing and sales indicate that the national manufactures can be competitive especially on their prices.

Competitiveness at company level

We analyzed some financial data in the case study. They showed that the investigated enterprises performed well even in international comparison, and they met their owners' requirements.

Changes in the Hungarian economy and in international markets demanded significant adjustment from the companies. With additional capital investment during the privatization the companies created the basis of their own restructuring and further development. The management of home manufacturers could manage and direct the processes at the companies. The proportion of highly qualified employees has grown at the companies.

Competitiveness at industry level

The Hungarian pharmaceutical industry has not just survived after the privatization, but from many points of view maintained its earlier position in the national economy. It was described by statistics of KSH (Central Statistical Office). Three of the former seven important players are still considered to be top players in the Hungarian pharmaceutical industry and market. The analysis on gross income showed that the industry contributed to the increase of its employees' living standards. In the significant import competition the companies' share was declined in the home market, but data show a stabilization of the leading companies' share products.

Competitiveness from the government's point of view: competitiveness national economy level

At the beginning of the 1990s the government played an important role in conducting the privatization. As Antalóczy (1999) showed, there were quite a few characteristic professional ideas upon privatization. At first, Chinoin Ltd. and Humán Ltd. were privatized in the pharmaceutical industry. They became property of professional investors. In both cases the management had a word in choosing a professional investor. The privatization of Egis took place in two phases, first by initial public offering, then by inviting professional investors. Richter is the only example of a privatization done purely through public offerings. The management played an active role, in choosing both the forms and management of privatization.

As a whole, privatization could be said to be successful, in which the management of the involved companies played an important role. The direct government policy to influence competitiveness of the pharmaceutical industry seems to have come to an end.

From the governmental point of view it is not of minor importance if such an industry employing more than 15 thousand people survives, and it can pay gross wages above the industrial average. Bogsch (2000) called the attention to the fact that the pharmaceutical industry as an employer contributed to fulfilling governmental objectives with reasonable budgetary payments.

In the 1990s the government influenced the competitiveness of pharmaceutical companies by the legal environment of the drug market, production and sales. The import liberalization was said to be extreme by several analysts and national pharmaceutical manufactures. The import liberalization meant such a competitive constraint which, in our opinion, accelerated the adaptation and consolidation of their market conform operations. The government tries to provide basic drugs with managing the approved budget. It is a generating rivalry among pharmaceutical companies. At the end of the 1990s from the governmental point of view the dominant issue was complying with the budgetary limits. This heated up competition among the distributors as well. The question of drug prices is also a political question, one of the means of social justice. In this field establishing NHS treatment system and NHS treatment list was a step ahead by the government in order to separate the insurance principle and social security considerations.

As the overall institutional reforms of the health care system have not yet happened, the pharmaceutical industry means such a sub-system where the governmental policy, which is intended to show successful actions, could show spectacular solutions.

6.3.3 *Is the Hungarian pharmaceutical industry competitive?*

I have summarized the competitiveness of the pharmaceutical industry by Porter (1998a) and on the basis of the multilevel competitiveness approach.

I meant those companies by the Hungarian pharmaceutical industry, which manufacture products in Hungary and contribute to the Hungarian pharmaceutical industry's production and so also to the GDP and pharmaceutical industry's exports. Now in 2000 nearly 200 pharmaceutical enterprises operate in Hungary. The tenth of that number, that is nearly twenty companies, employ more than 20 employees according to the statistics of KSH (Central Statistical Office). These companies employ more than 15,000 employees altogether, and they provide the Hungarian pharmaceutical industry's production and exports. Among those twenty companies that also operated before 1980, the national pharmaceutical manufacturers play a prevailing role. These are the following: Alkaloida (today called ICN Hungary), Biogal (today a Teva interest), Chinoin (the owner is the French Sanofi), Egis (the dominant owner is the Servier), Human Rt. (the owner is Teva as a result of Novopharm's acquisition), Richter (international and national financial institutions and the private investors' property), and Pharmavit (its owner is the Bristol Myers Squibb). So I take those companies as Hungarian in the global pharmaceutical industry that manufacture drugs, give jobs, and contribute to Hungarian export. The detailed analysis covered the three biggest home manufacturers, keeping in mind their size as follows, Richter, Chinoin, and Egis. These companies provided two thirds of the Hungarian pharmaceutical production, and employed nearly one third of the pharmaceutical employees. In the following the name of national companies and manufacturers covers the above listed seven enterprises.

In the following, I summarize the most important theses concerning my hypotheses.

The pharmaceutical industry is a global industry. The Hungarian pharmaceutical industry was confronted with this fact in the 1990s. With the appearance of globalization the competitiveness of the pharmaceutical industry was not declined.

- The Hungarian pharmaceutical industry was confronted most indirectly with globalization through import liberalization. Import liberalization was realized through the sale of multinational and global subsidiaries. This brought significant pressure on the development of the national manufacturers' marketing and sales methods.
- The nature of global industry influenced the ownership structure of the Hungarian drug manufacturers. There are leading professional and financial investors among shareholders of them.
- We can take the legislation of international principles and rules on manufacturing and distribution as part of globalization. In this field the Hungarian manufacturers were much more prepared than in marketing and distribution.
- The competitiveness of the Hungarian pharmaceutical industry was investigated by the performance of the pharmaceutical industry and the companies' adjustment ability. Analyses on performance compared the Hungarian pharmaceutical manufacturers' performance to Hungarian industrial average, to the result of global corporations, and to the leading companies in the region. On the basis of these data I prove that:

- a) The pharmaceutical industry preserved its position in the Hungarian industry as an employer, and it is still an export-oriented industry.
- b) The analysis of on company performance I found that the performance of the leading Hungarian players was better than, or around the best global corporations' performance.

The formerly export-oriented Hungarian industry operates in global. The characteristics of global industries, forces of the global competition, and the strategic alternatives and moves of global enterprises should be known by small players as well.

- Global pharmaceutical corporations, as I showed it in Chapter 6.1, determine the operation of the pharmaceutical industry. This has influence on the behavior of professional investors in Hungarian privatization. I showed that the Egis was fitted in to the strategy of its dominant owner, the Servier's, on generics and in the region of in East Europe. In the case of Chinoin we do not have data on privatization intentions, but the implemented policy and measures show that Chinoin fits into its parent company's operations, and it works as its regional enterprise.
- The companies gained such knowledge and skills during the process patent, reproduction that gave an advantage in developing and manufacturing of generics. Their retained market position on East European markets brought a formerly not-known and not managed geographical segment for their the parent companies in.
- The experience and local knowledge of the Hungarian pharmaceutical manufacturers on former socialistic markets is advantageous in the competition for being leading players in markets that are considered too risky by the global players. This is especially true about Richter's CIC market positions.

The pharmaceutical industry belongs to industry-portfolio of the Hungarian, which promotes both the competitiveness and performance of the national economy due to its competitiveness in national and foreign markets.

By the analysis based on KSH (Central Statistical Office) data on industry and the pharmaceutical industry we could settle the following theses in connection with competitiveness upon the Hungarian pharmaceutical industry.

- The pharmaceutical industry preserved its position as an employer in a transforming industry. The composition of employees in the pharmaceutical industry structurally changed to the white collars' advantage. The gross wage of pharmaceutical employees grew quicker than the industrial average, which shows that the industry could contribute to the growth of its employees' living standard. Because of this we could take the pharmaceutical industry as an industry, which contributed to the improvement of the Hungarian economy's competitiveness in the period between 1989 and 1998.

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