

# APTEKARZ

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Tadeusz J. Szuba

### Appeal to the world leaders: do not deprive people of medicines

Half a trillion dollars a year are spent worldwide on drugs. In spite of a huge financial effort many people even in affluent societies have difficult access to drugs. Most sick people in developing countries are not treated at all.

Inhuman health conditions are not generated by shortness of money. They are caused by money wasting. For \$ 500 billion, the sick get drugs worth less than \$ 50 billion. More than \$ 450 billion becomes an indecent, although legal, profit of the pharmaceutical companies.

To illustrate the above, a study has been undertaken, comprising 25 per cent of the international pharmaceutical market and taking into consideration products, quantities, trade marks, generics and prices. A sample of 25 per cent is representative for the whole market.

It has been shown that branded, monopolistic (exclusive right) products were 11.5 times more expensive than their generic, competitive equivalents. Branded drugs sold (at retail prices) for \$ 500 billion could be purchased for \$ 43,5 billion as generic versions.

There is a plenty of evidence revealing the veritable structure of pharmaceutical prices in brand industries:

sales	value of goods	monopoly rent*
100%	8.7%	91.3%

More than 90 per cent of the industry income is not generated by production and trade but by patents and trade marks.

Patents and trade marks are used in all the modern industries. However there is no other industry, other than the drug industry, exploiting patents and trade marks for such immense usury. Drug industry has become totally degenerated. Pharmaceutical managers have lost their sense of decency. There are numerous proofs.

E.g. Nifedipine, in tablets 10 mg is available at 0.7 cent per tablet, Bayer calls it Adalat or Procardia, and sells at 38 cents. Price ratio 54 : 1.

Ranitidine in tablets 150 mg costs 2.4 cents, Glaxo names it Zantac, and sells at \$ 1.90. Price ratio 79 : 1.

Drastic usury may be documented for a lot of drugs.

\* Rent in the industry is an economic category defining supplementary income which results from the more-favored position. Monopoly rent in the brand pharmaceutical industry is the economic effect of the product exclusivity granted by patents and trade marks.

In the past, the usurers were severely penalized. Today, a manager-usurer is given a salary of 1 billion dollars a month.

Why do people have to pay 5-10-50-100 times more for a drug? There are two reasons: 1) patents and 2) trade marks.

1) A drug prior to its introduction on the market is patented. The owner of a patent has exclusive rights, is a monopolist. He can fix any price, and the people have to pay it. Health insurance helps them.

Patent expires after 20 years.

2) A drug prior to introduction on the market is given the trade name, the trade mark, the brand name, e.g. Zantac for ranitidine. The trade mark (name) is exclusive. The trade mark is valid for ever.

Within 20 years of drug monopoly (due to a patent) doctors and patients get accustomed to the brand name. When after 20 years free production and trade is allowed, competitors are prohibited to use the famous, well known, brand name, e.g. Zantac. They have to call their identical products differently e.g. Ranitidine. But the law prohibits the competitor to say that his ranitidine is an equivalent of Zantac. Surprisingly, it is regarded as a symptom of dishonest competition. It "abuses" one's property. So doctors continue prescribing expensive Zantac and there is no demand for cheap ranitidine.

Nowadays, manufacturing and selling medicines has become almost entirely monopolistic. After patent expiration the competition is illusory. Monopoly persists.

First discoveries of indecent exploitation of patents and trade marks in pharmaceutical industries were made in the USA by senators Kefauver and Harris in 1960s. Their revelations were confirmed by auditors in other countries. Remedies and preventive measures were sought. The first measure was a legal provision obliging drug makers to use not registered name (ranitidine) in addition to the brand name (e.g. Zantac).

Shortly after, rich industries created "science" for explaining that a monopoly is not a monopoly, that there is sharp competition in the monopolistic pharma business. Monopolistic Zantac (ranitidine) competes with monopolistic Tagamet (cimetidine). The maker of cimetidine has to spend much money for convincing doctors that cimetidine is better than ranitidine. The maker of ranitidine does the opposite. Two different products compete with each other.

Industrial "scientists" do not wish to notice that real competition, the competition of ranitidine with ranitidine brings the price down from \$ 1.90 to \$ 0.024 (see Annex Table 1 page 4). The competition of the monopolistic ranitidine (Zantac) with the monopolistic cimetidine (Tagamet) raises prices.

Industry-friendly scientists invented an argument that a monopolistic drug has to be expensive because of it involves high cost of research and development. There is a plenty of statements that inventing a new drug costs \$ 500 billion. Some say - \$ 800 billion or more. It is a great humbug. Nobody knows the truth, the industrial data is secret, no company had documented

an expense of \$ 500 billion. The truth easily documented is that most pharmaceutical inventions are simple, quick and cheap me-too drugs, drug-analogues, followers of somebody else's financial and therapeutic success.

Chlorothiazide has been followed by hydrochlorothiazide, cyclopenthiiazide, methylclothiazide, bendroflumethiazide, polythiazide, cyclothiazide, and many other thiazides. These inventions almost certainly did not cost even \$ 5 billion each. Most drugs are made in this way.

Industry-friendly scientists made the calculation and declared that the registration of a new drug is very long, it takes supposedly 12 years. In fact real inventions are being registered quickly. However, industrial claims were enough for extending the patent protection from 20 to 25 years (Supplementary Protection Certificate).

Tons of industrial "scientific" literature have been fruitful. Kefauver's and Harris's discoveries are long forgotten. In 1970s, 1980s and 1990s parliaments and governments in most developed countries favored usurious practices of the pharmaceutical industries. Patriotic politicians, for love of their countries, preferred egoistic national profits to ethical international solidarity.

Many politicians are not aware of the range of those abuses. Multinational companies declare profits of 10-20-30 per cent. On the surface everything is fine.

In fact, billions of people requiring drugs are exploited scandalously. Very many are dying nonsensically; even insurance or charities are unable to help.

Excessive abusing of patents and trade marks does not destroy the poor world only. It destroys the whole world because it slows down the progress. Every year there are less and less novelties. Former stimulating effects of the patent system vanished. Manufacturers getting easily \$ 1-2-5 billion a year from a drug are not interested in investing money in a different (even better) drug.

Solution to these human problems exists. World leaders should allow the WTO (World Trade Organization) and WIPO (World Intellectual Property Organization) to change the law governing protection of industrial property in pharmaceuticals:

1. To shorten patent protection of drugs from 20 to 10 years.
2. To cancel the proprietorship of registered drug names after 15 years of their use.

The majority of UN members is evidently pro, see generics against AIDS, generics for the poorest countries. The small minority of the most developed countries is not.

World leaders are very busy with terrorism, disarmament, hunger. They are required to add to their sorrows the pharmaceutical misery too.

Annex: A pharmacoeconomic study "Generic versus branded drugs"

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## Generic versus branded drugs (pharmacoeconomic study)

### Introduction

Patent protection started in 1883 (Paris Convention). The idea was successful. First of all in pharmaceutical industries. We learned from WIPO\* offices that 60 per cent of all patents were registered for pharmaceutical chemicals.

The protection of inventions meant progress. The protection granted high remuneration within 7-10-16 years and encouraged new inventions. The progress also resulted from the obligation to reveal any secrets, any discretions connected with the invention to the public. After the period of protection anyone could immediately begin the production, contribute to competition, to lowering prices.

After 100 years, in the early 1960s, one began to notice bad side of patents (and trade marks).

Hearings of the Kefauver's Committee in the US Senate brought to light serious irregularities in the pharmaceutical industries (1). Drug manufacturers were accused of misusing their monopoly power, of excessive profits, of unfair promotion, and even of fictitious research exercised mainly through relatively easy molecular manipulation.

Kefauver's spectacular discoveries gave rise to academic studies as well as to legal audits in other countries.

The Sainsbury Committee revealed similar faults in the British pharmaceutical industry in 1967 (2). Shortly afterwards, the Harley Committee found an analogical situation in Canada (3). There was no doubt that a disease was affecting pharmaceuticals all over the developed world.

The daily press, consumer protection organizations and political parties boiled over with criticism. The British Labour Party stated in its 1973 program:

"Since the National Health Service is the major customer of our drug industry, the discussion on its pricing and promotion policies has often led to a call for outright nationalization. The Sainsbury Committee reporting in 1967, called for reforms. We shall, in conjunction with our other policies, insist on some element of public ownership in the future" (4).

Sir Isaac Newton said that "For every action, there is an equal and opposite reaction.". His rule, valid in dynamics, has also found application in drug economics. In the 70s the reactionary pharma-economic works appeared. Their main findings were:

- there was no monopolistic power, since no barriers existed to prevent the entry of competitors,
- competition prevailed on the pharmaceutical market; manufacturers competed both on quality and on price,
- prices were declining,
- the process of research and development was risky, its cost was growing substantially,
- profitability had a downward trend.

Works advocating the monopolistic practices were numerous. No wonder. We remember various waves in economic theories. Most economists since Adam Smith's "The Wealth of Nations" (5) have criticized monopoly and advocated freer competition. Certainly Senator Kefauver's team (and other contributors to the first wave of pharma-economic studies in the 1960s) were fond of Smith's theories. The Kefauver Committee's official name was the "Antitrust and Monopoly Subcommittee". However, in the era of monopolies Joseph Schumpeter propagated that "perfect competition is not only impossible but inferior, and has no title to be set up as model of ideal efficiency" (6). He found numerous believers. His theories were exploited in the second wave of pharma-economic works in the 1970s and later.

The peculiarity of pharmaceutical economics is astonishing. It is possible - in harmony with the contradictory Smithsonian and Schumpeterian theories - to manufacture efficiently and cheaply megatons of non-patented drugs, satisfying the basic needs of the world population, as well as to manufacture and sell monopolistic drugs at half the present cost, nevertheless giving full satisfaction to the profit expectations of the entrepreneurs.

We will try to uphold this thesis in our work. Our task is difficult as chances in the theoretical and real Smithsonian - Schumpeterian war are unequal. Smith's sympathizers work for the science, for universities, for misericord, for humanity. Schumpeter's followers are likely to work for earnings. For the rich industry. Look:

- G. Teeling-Smith served the Association of the British Pharmaceutical Industry, CIOMS, Sandoz Institute (7),
- W.D. Reekie served the Office of Health Economics established by the pharmaceutical industry (8), (9), (10),
- G. Polanyi served the Association of the British Pharmaceutical Industry (11),
- L. Lasagna - the American Enterprise Institute (12),
- H.G. Grabowski - the American Enterprise Institute (13),
- L. Telser - the American Enterprise Institute (14),
- H.A. Clymer - the American University (15),
- et cetera.

\* World Intellectual Property Organization

Dozens scientists worked more or less officially for the industrial interests. We can only imagine how many of them worked unofficially.

Most developed nations gave credence to arguments of the industry claiming that its economic position was unsatisfactory.

In 1980s and 1990s the industry was more and more victorious. To grow and develop, to invest and give the world new better drugs, they obtained more and more privileges (under the patent law framework). The validity of their new patents was extended to 20 years. Additionally they obtained 5-years protection - to 25 years (5 years of the Supplementary Protection Certificate).

Obstruction against competitive generics intensified:

- generic maker has no access to the invention's technical and medical data until the patent expires (what is in contradiction with the basic concept of a patent),
- generic maker cannot produce and commercialize competitive product when monopolistic maker has stopped its production!!!! (what is in contradiction with commonsense).

The WHO's\* reasonable idea of GMP\*\* (16), an instrument invented against crooks delivering counterfeit drugs to poor and less developed countries and against big factories making simultaneously 200-300 drugs (error risky), has been converted into instrument oriented against small generic factories. There are now very many countries where generic pharmaceutical industry and market does not exist. The accessibility to competitive cheap products is very limited due to a drug policy that is favorable to the brand, monopolistic industry.

We intend to light up the current market situation.

### Research Methodology

There are two pharma industries. Their products are technically and pharmacologically identical, but economically very different. We call them "branded" and "generic".

The most peculiar characteristic of the branded industry is monopoly. A branded drug is manufactured by one company only. At the beginning of a drug history, the exclusivity is justified by patent, by protection of a novelty. Then, the exclusivity originates from trade mark (trade name).

The most important characteristic of the generic industry is competition. After the patent expiration, there can be many manufacturers. They fight each other. The price of a generic product becomes 2-5-10-50 times smaller than the price of the branded product.

The quality of a branded drug and its generic homologue is equal. No doubt, because any drug has to be approved by the respective governmental agency. The agency does not accept inferior quality.

\* World Health Organization

\*\* Good Manufacturing Practice

What is sensational in pharmacoeconomics is that demand does not follow low price.

Within a long period of patent protection doctors and patients get accustomed to the trade name only. The name owned by one company. Competitors, appearing after the patent expires, are not allowed to use that name. They have to apply another drug name, and ... eventually do not attract clients.

Consuetudo altera natura. Doctors continue to prescribe the old trade mark. Patients continue to use that product they have become accustomed to.

Such a market is prevailing in affluent societies. The consequences for not affluent societies are unfavorable. Drug companies do not wish to sell in South America at \$ 2 what they sell in North America at \$ 20 or 50.

In our work we analyze and compare prices of identical branded and generic drugs. We operate on the data recorded in statistics and price lists for the period 2000-2002. We have concentrated our attention on the top drugs commercialized in huge quantities, representing about 25 per cent of the world pharmaceutical turnover.

Price records rely on trustworthy sources of information:

For branded drugs, the US Red Book (17) was used. When a product was not traded in the USA, the corresponding price lists from Germany (Rote Liste) (18), Great Britain (BNF) (19) were used.

For generic drugs, we used the following:

- Medicaid quotations in the United States (17),
- UNICEF experience in New York and Copenhagen (20),
- International Drug Price Indicator Guide developed by MSH in collaboration with WHO (21),
- Price lists in Polish pharmacies (Poland is a country of 38 million people and 10.000 pharmacies) (22).

We have never relied on the cheapest (and probably very good) sources from China, India and other countries where we missed information on GMP certificates (Good Manufacturing Practice).

We did not exaggerate with mathematical precision. Apparently, the exchange rate of dollar, euro, zloty, pound, did oscillate. But we assumed that one US dollar was always equal to one euro, to four PLN. One British pound = one and half US dollar.

Our price records were taken from manufacturers (ex-work). When the Red Book did not indicate a direct price, we took the AWP\* and reduced it by 20 per cent.

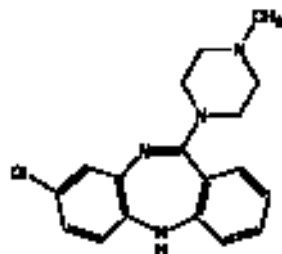
Confrontation of branded and generic prices from the scientific point of view was accurate. Everybody willing to repeat the research has easy access to our sources of information (their names-numbers are given in brac-

\* Average Wholesale Price

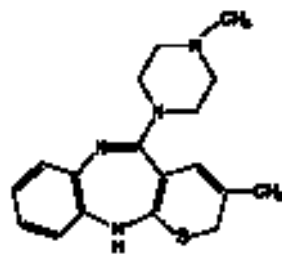
kets), and is able to verify our calculations. This statement concerns many products relatively old which are no longer protected by patents.

We extended the study to congeners, drug-analogues, invented later, therefore still patented, of which future generic prices may be easily estimated hypothetically.

Example 1:



clozapine  
invention 1965  
Wander

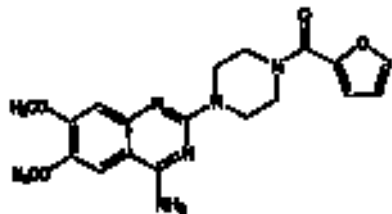


olanzapine  
invention 1991  
Eli Lilly

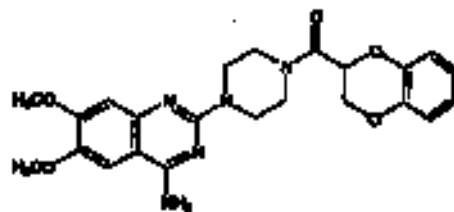
We do not object quoting by Eli Lilly \$ 7,76 for one tablet of Zyprexa (olanzapine). They are right to set for their novelty any price and not to face competition as long as their patent is valid. We simply wish to know the monopoly rent resulting from a patent.

To learn about the monopoly rent, we should estimate the hypothetical price of the future generic olanzapine. It is evident that the price of generic olanzapine (when applicable) can't differ much from the price of generic clozapine. They are chemically very close to each other. Since clozapine is available at \$ 0.12 per tablet, olanzapine will be available at \$ 0.12 per tablet. The monopoly allows Eli Lilly to cash \$7.76, i.e. 65 times more.

Example 2:



prazosin  
invention 1969  
Pfizer



doxazosin  
invention 1979  
Pfizer

We do not object some alfaadrenergic superiority of doxazosin over pra-

zosin nor Pfizer's right to sell Cardura (doxazosin) at \$ 0.917 per 1 tablet while prazosin is easily available at \$ 0.0217 per 1 tablet. We wish to say that in our opinion the cost of making doxazosin is very similar to that of prazosin. Since the patent allows the maker to cash for 1 tablet 42 times more, the monopoly rent is very attractive. Patent protection grants a company many billions within the period of exclusivity.

In our study we omitted comparative analysis when the hypothetical estimation of generic prices was impossible. It referred e.g. to biotechnology products.

For the calculation of a monopoly rent we relied on sales volumes published in the pharmacoeconomic literature (23).

### Research results

The level of drug prices and confrontation of the branded and generic prices is presented in Table 1 and Table 2. Prices are ex-work. In Table 1 we find real prices taken from the market. In Table 2 real prices refer to the trade marks (branded drugs) only. For their generic equivalents, the prices have been calculated hypothetically.

The monopoly rent is presented in Table 3. The monopoly rent has been calculated by deducting the value of the same quantities of competitive generic products from the sale value of branded drugs.

The study comprises one fourth (24.6 per cent) of the world pharmaceutical sales, with a turnover of \$ 89.44 billion, at the total turnover of \$ 364.2 billion in 2001 (24). According to documented data presented in the Tables, branded drugs delivered at \$ 89.44 billion could be available from generic sources at \$ 5.84 billion, 15.3 times cheaper. The magnitude of the monopoly rent received by the branded pharmaceutical industries was \$ 83.6 billion, i.e. 93.5 per cent of the sales.

Therefore, the whole pharmaceutical turnover, \$ 364.2 billion, produced the monopoly rent of \$ 340.4 (93.5 per cent).

Those results have to be commented and possibly corrected. Why? Our price analysis of branded drugs was based mostly on American sources of information (17). Logically it was acceptable. The United States is the biggest market, standing for about 35 per cent of the world consumption. Unfortunately for us, drug prices in different countries vary. Sometimes significantly. In the USA they are very expensive. They are very high in Japan too (about 15 per cent of the world consumption). Prices are lower in Europe and elsewhere. Price levels differ from country to country.

Of course we were unable to learn drug prices applied and drug quantities consumed in many countries. It would take many years. We decided to rely on American prices for 50 per cent of the world pharmaceutical turnover (35 per cent USA + 15 per cent Japan) and to assume that elsewhere on the average drug prices are less by half.

I. First calculation based on American prices

<u>branded sales effected</u>		<u>generic bid</u>		<u>monopoly rent</u>
364.2	minus	23.8	equals	340.4
(100%)		(6,5%)		(93,5%)

II. Second corrected calculation based on American prices for one half of sales and on 50% reduced prices for second half of sales

<u>branded sales effected</u>		<u>generic bid</u>		<u>monopoly rent</u>
273,2	minus	23,8	equals	249,4
(100%)		(8,7%)		(91,3%)

The calculation shows that branded industries make about \$ 250 billion a year on the system of patents and trade marks.

Branded drugs are 11.5 times more expensive than generic drugs.

Research results are shocking. They are almost incredible for "normal" economists who have never seen identical products on the market, sold at prices differing 50 or 100 times from one another. Here are a few instances drawn from Table 1:

Medicine	Drug price in \$/1 tablet		Price ratio 2 : 3
	branded	generic	
1	2	3	4
Ciprofloxacin tab. 250 mg	Cipro 4,23	Ciprofloxacin 0,0355	119
Ethinylestradiol + Levonorgestrel pills	Alesse 1,255	Rigevidon 0,0119	105
Verapamil tab. 120 mg	Isoptin 1,14	Verapamil 0,012	95
Piroxicam tab 20 mg	Feldene 2,48	Piroxicam 0,028	89
Ranitidine tab. 150 mg	Zantac 1,90	Ranitidine 0,0241	79

The explanation of this phenomenon is well known. A new product entering the market is patented. There is no competition. The monopolist may fix any price.

The product enters the market under a registered name, trade name (trade mark). Within many years of patent validity, of using by doctors, pharmacists, patients the trade name only, they get accustomed to it. Competitors are forbidden to use this name. They use other names so they seem to offer other products. They don't find clients.

Patent and trade mark are keys to the phenomenon.

There is another phenomenon that needs explanation. It is the cost of inventing a new drug.

Pharmaceutical industrialists say that drug prices have to be high to recover enormous expenses necessary for research and development. The world expects new better drugs. One novelty costs - they say - \$ 500 million. They say they spend on R&D 10-15 per cent of the income.

No doubt, in pharma industry intensive R&D is very desired. If they spend, as they declare, 10-15 per cent of the income, this means they spend \$ 40-60 billion a year on R&D. Meanwhile they collect, due to high prices, a monopoly rent amounting to \$ 250 billion. Where is the difference? The subject is exciting.

Therefore, we took a closer look in our study at novelties.

Some pharmaceutical inventions are products of scientists or good luck, and not industrial research, e.g. penicillin, chlorpromazine (Largactil, Thorazine), sildenafil (Viagra). They did not cost \$500 million.

Most pharmaceutical inventions classified as products of the industry are easy, quick and cheap congeners, drug-analogues, following somebody else's financial success. They also did not cost \$ 500 million. Look: a) Chlorothiazide was a real invention patented by Merck Sharp Dohme in 1957. Sales started in 1959 (Diuril). First modern diuretic, fame, big money.

Very soon numerous congeners appeared, products structurally and therapeutically very similar:

Hydrochlorothiazide of Ciba (Esidrex) invented in 1959; sales started in 1960, one year after Chlorothiazide,  
Methylclothiazide of Abbott (Enduron) invented in 1960,  
Cyclopenthiiazide of Ciba (Navidrex), 1961,  
Bendroflumethiazide of Loevens, 1961,  
Polythiazide of Pfizer, 1961,  
Cyclothiazide of Boehringer Ingelheim, 1961, et cetera.

Dozens of other thiazides followed. Almost every company wished to cut a slice of the cake called chlorothiazide. There was plenty of "inventions". The cost of one invention was probably less than \$ 5 million. The time of registration is often instant.

b) Lovastatin was the first good modern antihyperlipidemic agent (Mevacor). Success, billions of profit.

Today top selling statins are atorvastatin (Lipitor, Sortis), simvastatin (Zocor), pravastatin (Pravachol, Lipostat). They generate income of \$14 billion a year while they did not cost much. They were modifications of ingenious and lucrative lovastatin.

c) Propranolol was invented in a small pharmaceutical division at Imperial Chemical Industries in 1964. It was the first modern cardiac agent, a revolutionary betablocker (Inderal). Income and profit generated by Inde-

ral were likely more than division was worth. Propranolol could not cost \$ 500 million as the department was poor. Let us agree that it did cost. But later other companies "invented" dozens of almost identical beta-blockers, slightly modified copies which certainly costed very little.

Thesis that a new drug costs \$ 500 million on average is a pure non-sense. Policy makers and legislators must be aware of this fact. The imaginary high cost of inventing a new drug is the only serious argument for laying down laws protecting the industrial pharmaceutical property rights (patents and trade marks) to an excessive extent.

### Discussion and conclusions

The present legal order grants to many privileges to the pharmaceutical industry. They are excessively exploited in disfavor of humanity. Excessive privileges are inherent in patents and trade marks.

Medicines are too expensive and inaccessible to many people (25).

The progress (inventing new drugs) has been slowed down.

Patents were established to accelerate development. They did so. They still do so in non-pharmaceutical industries. Being granted protection of the novelty, exclusivity of production and sale for some time, the inventors reciprocated by disclosure of all the secrets accompanying the discovery. So after the time of monopoly stated by the law expired, competitors could quickly and effectively enter the market, augment production, ensure sufficient supply of the goods; the goods got cheaper and became accessible to many people.

Nowadays pharmaceutical patents act differently.

Drugs remain monopolistic for 20 years (!) under the patent protection. Plus possibly additional 5 years (SPC). Plus an unlimited number of years due to a trade mark.

Drugs remain 10-20 or even 50-100 times too expensive "for ever".

Patent system totally degenerated in pharma industry. Trade marks add to the misfortune.

Canceling patents and trade marks in general is hardly likely to happen. Perhaps a limitation of privileges would be sufficient:

- the validity of patents should be shortened from 20 to 10 years,
- trade marks (branded names) should be cancelled after 15 years of utilization,
- all obstacles hindering competitors from doing generics immediately after the patent expiration should be removed.

Table 1

**Real comparative analysis  
of pricing generic and branded drugs**  
(prices ex-work in US dollars per 1 tab. cap. inj.)

No	Medicine	branded	generic	difference
1	2	3	4	5
1	Aciclovir tab. 800 mg	Zovirax 4,40 (17)*	Aciclovir 0,18 (20) *	2440 %
2	Alendronate tab. 10 mg	Fosamax 1,85 (17)	Rekostin 0,506 (22)	370 %
3	Alprazolam tab. 0,5 mg	Xanax 1,239 (17)	Afobam 0,0493 (17)	2510 %
4	Ambroxol tab. 30 mg	Mucosolvan 0,203 (18)	Mukobron 0,0289 (22)	700 %
5	Amlodaronе tab. 200 mg	Cardarone 3,00 (17)	Opacorden 0,06 (22)	5000 %
6	Amlodipine tab. 10 mg	Norvasc 1,74 (17)	Amlozec 0,163 (22)	1070 %
7	Amoxicillin tab. 500 mg	Amoxil 0,32 (17)	Hiconcil 0,10 (21)	320 %
8	Amoxicillin clavulanate tab. 500 mg + 125 mg	Augmentin 3,45 (17)	Amoxicillin clavulanate 0,25 (17)	1380 %
9	Atenolol tab. 100 mg	Tenormin 1,48 (17)	Normocard 0,0275 (21)	5380 %
10	Beclomethason aer. 50 mcg x 200	Beconase 45,68 (17)	Beclocort mitte 1,17 (22)	3900 %
11	Betamethasone gel. 0,05%-15g	Diprosone 24,49 (17)	Betamethasone 0,32 (21)	7653 %
12	Bromocriptine tab. 2,5 mg	Parlodel 2,04 (17)	Ergolaktyna 0,114 (22)	1789 %
13	Budesonid aer. 32 mcg x 200	Rhinocort 36,00 (17)	Horacort 2,45 (22)	1469 %
14	Buspirone tab. 10 mg	Buspar 1,31 (17)	Mabuson 0,123 (22)	1070 %
15	Captopril tab. 25 mg	Capoten 0,91 (17)	Captopril 0,0193 (22)	4720 %
16	Carbamazepine tab. 200 mg	Tegretol 0,422 (17)	Carbamazepine 0,0131 (21)	320 %

\* in brackets are given sources of price information



No	Medicine	Branded	Generic	difference
1	2	3	4	5
17	Carvedilol tab. 25 mg	Coreg 1,38 (17)	Carvedilol 0,16 (19) (22)	817 %
18	Cefuroxim inj. 750 mg	Zinacef 6,09 (17)	Biofuroksym 1,385 (22)	440 %
19	Cetirizine tab. 1 mg	Zyrtec 1,63 (17)	CetAlergin 0,091 (22)	1790 %
20	Cimetidine tab. 200 mg	Tagamet 0,74 (17)	Cimetidine 0,0082 (21)	9024 %
21	Ciprofloxacin tab. 250 mg	Cipro 4,23 (17)	Ciprofloxacin 0,0355 (21)	11915 %
22	Clonazepam tab. 2 mg	Klonopin 1,116 (17)	Clonazepam 0,024 (22)	4650 %
23	Clonidine tab. 0,1 mg	Catapres 0,666 (17)	Iporel 0,007 (22)	9514 %
24	Clozapine tab. 100 mg	Clozaril 3,169 (17)	Klozapol 0,12 (22)	2640 %
25	Diclofenac tab. 50 mg	Voltaren 1,48 (17)	Diclofenac 0,0165 (21)	8970 %
26	Diltiazem tab. 30 mg	Cardizem 0,45 (17)	Diltiazem 0,025 (22)	1800 %
27	Enalapril tab. 5 mg	Vasotec 0,95 (17)	Enarenal 0,02 (22)	4750 %
28	Ethinylestradiol+Levonorgestrel pills	Alesse 1,255 (17)	Rigevidon 0,0119 (22)	10546%
29	Famotidine tab. 40 mg	Pepcid 3,135 (17)	Ulfamid 0,0538 (22)	5830 %
30	Fenofibrat caps. 200 mg	TriCor 2,176 (17)	Grofibrat 0,158 (22)	1377 %
31	Fluconazole tab. 200 mg	Diflucan 10,59 (17)	Fluconazole 0,20 (22)	5295 %
32	Fluoxetine tab. 20 mg	Prozac 2,59 (17)	Fluoxetin 0,123 (22)	2110 %
33	Flutamid tab. 250 mg	Eulexin 3,99 (17)	Flutamid 0,184 (22)	2168 %
34	Fluvoxamine tab. 50 mg	Luvox 2,74 (17)	Fevarin 0,234 (22)	1171 %

No	Medicine	Branded	Generic	difference
1	2	3	4	5
35	Furosemide tab. 40 mg	Lasix 0,222 (17)	Furosemide 0,0042 (21)	5286 %
36	Glipizide tab. 5 mg	Glucotrol 0,3033 (17)	Glipizide 0,043 (22)	710 %
37	Hyoscine buthylbromide tab. 10 mg	Buscopan 0,26 (18)	Hyoscine butylbromide 0,0288 (21)	903 %
38	Ipratropium + Salbutamol aer. 21 mcg + 120 mcg x 200	Combivent 39,63 (17)	Combivent 6,00 (19)	660 %
39	Isosorbide dinitrate tab. 10 mg	Isordil 0,309 (17)	Isosorbide dinitrate 0,0043 (21)	7186 %
40	Itraconazole cap. 100 mg	Sporanox 6,48 (17)	Itraconazole 0,50 (20)	1300 %
41	Ketotifen tab. 1 mg	Zaditor 0,2825 (17)	Ketotifen 0,0253 (22)	1117 %
42	Lamivudine cap. 100 mg	Epivir 4,214 (17)	Lamivudine 0,14 (20)	3010 %
43	Lamivudine + Zidovudine tab. 150 mg + 300 mg	Combivir 9,173 (17)	Lamivudine+Zidovudine 0,65 (20)	1410 %
44	Levodopa + Carbidopa tab. 250 mg + 25 mg	Sinemet 0,9517 (17)	Poldomet 0,1033 (22)	912 %
45	Lidocaine inj. 2%-50 ml	Xylocaine 4,72 (17)	Lidocaine 0,328 (21)	1439 %
46	Lisinopril tab. 5 mg	Prinivil 1,02 (17)	Lisiprol 0,099 (22)	1030 %
47	Loratadine tab. 10 mg	Claritin 2,22 (17)	Loratan 0,153 (22)	1450 %
48	Lorazepam tab. 1 mg	Ativan 0,887 (17)	Lorafen 0,04 (22)	2217 %
49	Lovastatin tab. 20 mg	Mevacor 2,109 (17)	Lovastatinum 0,176 (22)	1200 %
50	Medroxyprogesterone tab. 5 mg	Provera 0,7377 (17)	Gestomikron 0,0875 (22)	843 %
51	Metformin tab. 500 mg	Glucophage 0,65 (17)	Metformin 0,0156 (21)	4170 %
52	Methylprednisolone tab. 4 mg	Medrol 0,73 (17)	Metypred 0,06 (22)	1220 %
53	Metoprolol tab. 50 mg	Toprol 0,543 (17)	Metocard 0,0224 (22)	2420 %

No	Medicine	Branded	Generic	difference
1	2	3	4	5
54	Midazolam inj. 5 mg	Versed 3,30 (17)	Sopodorm 0,575 (22)	570 %
55	Nifedipine tab. 10 mg	Procardia 0,38 (17)	Cordafen 0,007 (22)	5430 %
56	Omeprazole tab. 20 mg	Prilosec 3,69 (17)	Omeprazole 0,33 (21)	1120 %
57	Oxybutinine tab. 5 mg	Ditropan 0,819 (17)	Driptan 0,0965 (22)	849 %
58	Pentoxifylline tab. 400 mg	Trental 0,658 (17)	Polfillin 0,102 (22)	645 %
59	Phenytoin tab. 100 mg	Dilantin 0,239 (17)	Phenytoinum 0,023 (22)	1039 %
60	Piroxicam tab. 20 mg	Feldene 2,48 (17)	Piroxicam 0,028 (22)	8857 %
61	Ranitidine tab. 150 mg	Zantac 1,90 (17)	Ranitidine 0,0241 (21)	7880 %
62	Salbutamol (Albuterol) inh. 0,1 mg x 200	Ventolin 29,22 (17)	Salbutamol 1,05 (21)	2780 %
63	Sotalol tab. 80 mg	Betapace 2,96 (17)	Biosotal 0,0566 (22)	5230 %
64	Spironolactone tab. 25 mg	Aldactone 0,465 (17)	Spironolactone 0,0246 (22)	1890 %
65	Stavudine cap. 40 mg	Zerit 4,40 (17)	Stavudine 0,30 (20)	1470 %
66	Sulpiride cap. 50 mg	Dogmatil 0,267 (18)	Sulpiryd 0,0347 (22)	769 %
67	Tamoxifen tab. 10 mg	Nolvadex 1,183 (17)	Tamoxifen 0,049 (22)	2410 %
68	Ticlopidine tab. 250 mg	Ticlid 1,98 (17)	Aclostin 0,28 (22)	707 %
69	Timolol eye drops 0,5%-15 ml	Timoptic 56,69 (17)	Oftensin 2,30 (22)	2465 %
70	Tramadol tab. 50 mg	Ultram 0,71 (17)	Slovadol 0,096 (22)	740 %
71	Triamcinolone oin. 0,1%- 15 g	Kenalog 13,27 (17)	Polcortolon 0,37 (22)	3590 %
72	Verapamil tab. 120 mg	Isoptin 1,14 (17)	Verapamil 0,012 (21)	9500 %

Table 2

**Hypothetic comparative analysis  
of pricing generic and branded drugs**  
(prices ex-work in US dollars per 1 tab. cab. inj.)

No	Medicine	Branded	Generic	difference
1	2	3	4	5
1	Atorvastatin tab. 20 mg	Lipitor 2,83 (17) *	Lovastatin 0,176 (22) *	1610 %
2	Benazepril tab. 10 mg	Lotensin 0,935 (17)	Enarenal (Enalapril) 0,02 (22)	4670 %
3	Bromazepam tab. 6 mg	Lexotanil 0,335 (18)	Oxazepam 0,0296 (22)	1132 %
4	Cilazapril tab. 1 mg	Dynorm 0,428 (18)	Enalapril 0,02 (22)	2140 %
5	Clopidogrel tab. 75 mg	Plavix 3,16 (17)	Aclostin (Ticlopidine) 0,279 (22)	1133 %
6	Doxazosin tab. 4 mg	Cardura 0,917 (17)	Polpressin (Prazosine) 0,0217 (22)	4230 %
7	Ethinylestradiol+Cyproterone tab.	Diane-35 0,528 (18)	Ethinylestradiol+ Levonorgestrel 0,0119 (22)	4437 %
8	Ethinylestradiol+Norethindrone tab.	Ortho-Novum 0,975 (17)	Ethinylestradiol+ Levonorgestrel 0,0119 (22)	8190 %
9	Felodipine tab. 5 mg	Plendil 0,938 (17)	Cordafen (Nifedipine) 0,007 (22)	13400 %
10	Fexofenadine caps. 60 mg	Allegra 0,98 (17)	Terfenadine 0,0366 (18)	2677 %
11	Fluvastatin caps. 20 mg	Lescol 1,23 (17)	Lovastatinum 0,176 (22)	699 %
12	Fosinopril tab. 20 mg	Monopril 0,915 (17)	Enarenal (Enalapril) 0,02 (22)	4575 %
13	Gatifloxacin tab. 200 mg	Tequin 6,82 (17)	Ciprofloxacin 0,179 (22)	3810 %
14	Imidapril tab. 10 mg	Tanatril 0,60 (18)	Enalapril 0,02 (22)	3000 %
15	Lansoprazole tab. 15 mg	Prevacid 3,50 (17)	Omeprazole 0,33 (21)	1060 %
16	Levofloxacin tab. 250 mg	Levaquin 6,38 (17)	Ciprofloxacin 0,0355 (21)	17972 %

\* in brackets are given sources of price information

No	Medicine	Branded	Generic	difference
1	2	3	4	5
17	Meloxicam tab. 15 mg	Mobic 2,00 (17)	Piroxicam 0,028 (22)	7143 %
18	Nicardipine cap. 20 mg	Cardene 0,465 (17)	Nifedipine 0,007 (22)	6643 %
19	Nilvadipine tab. 16 mg	Nivadil 0,694 (18)	Nifedipine 0,007 (22)	9914 %
20	Nizatidine cap. 150 mg	Axid 2,22 (17)	Ranitidine 0,0241 (22)	9212 %
21	Olanzapine tab. 10 mg	Zyprexa 7,76 (17)	Klozapol (Clozapine) 0,12 (22)	6470 %
22	Pantoprazole tab. 20 mg	Protonix 2,61 (17)	Omeprazole 0,33 (21)	791 %
23	Paroxetine tab. 20 mg	Paxil 2,26 (17)	Fluoxetine 0,123 (22)	1837 %
24	Pravastatin tab. 20 mg	Pravachol 2,23 (17)	Lovastatin 0,176 (22)	1270 %
25	Quetiapine tab. 100 mg	Seroquel 2,23 (17)	Klozapol (Clozapine) 0,12 (22)	1858 %
26	Quinapril tab. 10 mg	Accupril 0,90 (17)	Enarenal (Enalapril) 0,02 (22)	4500 %
27	Rabeprazole tab. 20 mg	Aciphex 3,267 (17)	Omeprazol 0,33 (21)	990 %
28	Ramipril cap. 5 mg	Tritace 0,98 (17)	Enarenal (Enalapril) 0,02 (22)	4900 %
29	Sertraline tab. 50 mg	Zoloft 2,02 (17)	Fluoxetin 0,123 (22)	1640 %
30	Simvastatin tab. 20 mg	Zocor 3,53 (17)	Lovastatin 0,176 (22)	2010 %
31	Tamsulosin cap. 4 mg	Flomax 1,42 (17)	Polpressin (Prazosin) 0,0217 (22)	6540 %
32	Terazosin tab. 5 mg	Hytrin 1,7321 (17)	Polpressin (Prazosin) 0,0217 (22)	7982 %
33	Torasemid tab. 10 mg	Demadex 0,6015 (17)	Furosemid 0,0042 (22)	14321 %

Table 3

## Magnitude of the monopoly rent in pharma business

No	Medicine	Trade mark	Branded sales	Generic bid	Monopoly rent	6:4
1	2	3	4	5	6	7
			US dollars in millions			in per cent
1	Omeprazole	Prilosec, Losec	6.260,0	559,8	5.700,2	91,1
2	Simvastatin	Zocor, Lodalas	5.333,0	265,9	5.067,1	95,0
3	Atorvastatin	Lipitor, Sortis	5.031,0	312,9	4.718,1	93,8
4	Lansoprazole	Prevacid, Zoton, Lanzul	3.928,6	370,4	3.558,2	90,6
5	Pravastatin	Pravachol, Lipostat	3.536,9	279,1	3.257,8	92,1
6	Amlodipine	Norvasc	3.362,0	314,9	3.047,1	90,6
7	Loratadine	Claritin	3.011,0	207,5	2.803,5	93,1
8	Fluoxetine	Prozac	2.585,4	122,8	2.462,6	95,3
9	Olanzapine	Zyprexa	2.366,2	36,6	2.329,6	98,5
10	Paroxetine	Paxil	2.349,2	127,9	2.221,3	94,6
11	Lisinopril	Prinivil, Zestril, Longes	2.340,0	227,1	2.112,9	90,3
12	Sertraline	Zoloft	2.140,0	130,3	2.009,7	93,9
13	Famotidine	Pepcid, Gaster	1.858,0	31,9	1.826,1	98,3
14	Amoxicillin+ Clavulanic acid	Augmentin	1.847,5	133,9	1.713,6	92,8
15	Enalapril	Vasotec, Renitec	1.790,0	37,7	1.752,3	97,9
16	Metformin	Glucophage	1.782,0	42,8	1.739,2	97,6
17	Ciprofloxacin	Cipro, Ciprobay	1.647,9	13,8	1.634,1	99,2
18	Nifedipine	Procardia, Adalat	1.371,3	25,3	1.346,0	98,2
19	Clopidogrel	Plavix	1.306,4	115,8	1.190,6	91,1
20	Tamsulosin	Flomax, Omnic	1.292,8	19,8	1.273,0	98,5
21	Alendronate	Fosamax	1.275,0	348,7	926,3	72,7

No	Medicine	Trade mark	Branded sales	Generic bid	Monopoly rent	6:4
			US dollars in millions			in per cent
1	2	3	4	5	6	7
22	Levofloxacin	Levaquin, Tavanic	1.215,5	6,8	1.208,7	99,4
23	Venlafaxine	Effexor	1.159,1	277,4	881,7	76,1
24	Fexofenadine	Allegra	1.076,5	40,2	1.036,3	96,3
25	Fluconazole	Diffucan	1.014,0	19,2	994,8	98,1
26	Ranitidine	Zantac	1.002,3	12,7	989,6	98,7
27	Lamivudine+ Zidovudine	Combivir	851,8	60,4	791,4	92,9
28	Diclofenac	Voltaren	801,6	8,9	792,7	98,9
29	Doxazosin	Cardura	795,0	18,8	776,2	97,6
30	Benazepril	Lotensin	745,4	15,9	729,5	97,9
31	Salbutamol (Albuterol)	Ventolin	716,9	25,8	691,1	96,4
32	Buspirone	Buspar	709,0	66,6	642,4	90,6
33	Diltiazem	Cardizem, Dilzem, Herbesser, Triazac Tildiem	702,5	39,0	663,5	94,4
34	Cetirizine	Zyrtec	699,0	39,0	660,0	94,4
35	Cefuroxim axetil	Zinnat, Ceftin	651,7	148,2	503,5	77,3
36	Ramipril	Altace, Tritace	651,0	13,3	637,7	98,0
37	Stavudine	Zerit	618,0	42,1	575,9	93,2
38	Itraconazole	Sporanox	604,0	46,6	557,4	92,3
39	Metoprolol	Toprol	577,0	23,8	553,2	95,9
40	Tamoxifen	Nolvadex	576,0	23,9	552,1	95,9
41	Lamivudine	Epivir, Zeffix	574,4	19,1	555,3	96,7
42	Aciclovir	Zovirax	566,8	23,2	543,6	95,9

No	Medicine	Trade mark	Branded sales	Generic bid	Monopoly rent	6:4
			US dollars in millions			in per cent
1	2	3	4	5	6	7
43	Quinapril	Accupril, Accupro	553,0	12,3	540,7	97,8
44	Tramadol	Ultram, Tramal	521,0	70,4	450,6	86,5
45	Lovastatin	Mevacor	520,0	43,4	476,6	91,7
46	Fluvastatin	Lescol, Lochol	488,6	69,9	418,7	85,7
47	Felodipine	Plendil	480,0	35,8	444,2	92,5
48	Atenolol	Tenormin	471,0	4,6	466,4	99,0
49	Fosinopril	Monopril	442,0	9,7	432,3	97,8
50	Quetiapine	Seroquel	424,0	22,8	401,2	94,6
51	Ipratropium + Salbutamol	Combivent	421,0	63,7	357,3	84,9
52	Carbamazepine	Tegretol	417,1	12,9	404,2	96,9
53	Carvedilol	Coreg, Dilatrend Eucardic	366,3	42,5	323,8	88,4
54	Captopril	Capoten	356,0	7,6	348,4	97,9
55	Clozapine	Clozaril, Leponex	345,5	13,1	332,4	96,2
56	Verapamil	Isoptin, Calan	341,3	3,6	337,7	98,9
57	Beclomethasone	Beconase, Vancenase, Becotide, Beclovent	332,7	8,5	324,2	97,4
58	Alprazolam	Xanax	327,0	13,0	314,0	96,0
59	Nizatidine	Axid	326,3	3,5	322,8	98,9
60	Triamcinolone	Kenalog	319,4	8,9	310,5	97,2
61	Amiodarone	Cordarone	317,0	6,3	310,7	98,0
62	Ambroxol	Mucosolvan	312,0	44,4	267,6	85,8
63	Amoxicillin	Amoxil	301,6	23,6	278,0	92,2
64	Methylprednisolone	Medrol	284,0	23,3	260,7	91,8

No	Medicine	Trade mark	Branded sales	Generic bid	Monopoly rent	6:4
			US dollars in millions			in per cent
1	2	3	4	5	6	7
65	Glipizide	Glucotrol, Glibenese	280,0	39,7	240,3	85,8
66	Midazolam	Versed, Dormicum	278,0	48,4	229,6	82,6
67	Medroxyprogesterone	Provera	272,0	32,3	239,7	88,1
68	Timolol	Timoptic	255,0	10,3	244,7	96,0
69	Fluvoxamine	Luvox	250,2	21,4	228,8	91,4
70	Ethinylestradiol+ Levonorgestrel	Alesse, Microgynon	248,0	11,2	236,8	95,5
71	Terazosin	Hytrin	247,0	30,9	216,1	87,5
72	Lorazepam	Ativan	246,1	11,1	235,0	95,5
73	Lidocaine	Xylocaine	238,0	16,5	221,5	93,1
74	Phenytoin	Dilantin	232,0	22,3	209,7	90,4
75	Budesonid	Rhinocort	221,0	15,0	206,0	93,2
76	Ticlopidine	Ticlid	217,0	30,7	186,3	85,9
77	Isosorbide dinitrate	Isordil	215,2	3,0	212,2	98,6
78	Pentoxifylline	Trental	212,3	32,9	179,4	84,5
79	Clonidine	Catapres	211,4	22,2	189,2	89,5
80	Meloxicam	Mobic	208,6	2,9	205,7	98,6
81	Furosemide	Lasix	201,3	0,4	200,9	99,8
82	Spironolactone	Aldactone	187,0	9,9	177,1	94,7
83	Ketotifen	Zaditor, Zaditen	186,9	16,7	170,2	91,1
84	Ethinylestradiol + Cyproterone	Diane-35	184,6	41,6	143,0	77,5
85	Nicardipine	Cardene, Perdipine	183,7	2,8	180,9	98,5
86	Oxybutinine	Ditropan	179,0	21,1	157,9	88,2

No	Medicine	Trade mark	Branded sales	Generic bid	Monopoly rent	6:4
			US dollars in millions			in per cent
1	2	3	4	5	6	7
87	Betamethasone	Diprolene, Diprosone	177,0	2,3	174,7	98,7
88	Piroxicam	Feldene	176,0	2,0	174,0	98,9
89	Rabeprazole	Aciphex	172,5	17,4	155,1	89,9
90	Bromazepam	Lexotanil	171,6	15,2	156,4	91,1
91	Levodopa + Carbidopa	Sinemet	170,0	18,5	151,5	89,1
92	Imidapril	Tanatril	165,1	5,5	159,6	96,7
93	Hyoscine butylbromide	Buscopan	158,8	17,6	141,2	88,9
94	Sotalol	Betapace	155,1	3,0	152,1	98,1
95	Fenofibrat	Tricor	152,0	11,0	141,0	92,8
96	Cimetidine	Tagamet	151,6	1,7	149,9	98,9
97	Pantoprazole	Protonix, Controloc, Pantoloc	145,0	18,3	126,7	87,4
98	Nilvadipine	Nivadil	142,9	1,4	141,5	99,0
99	Torasemid	Demadex, Torem	136,1	1,0	135,1	99,3
100	Ethinylestradiol + Norethindrone	Ortho-Novum	135,0	0,6	134,4	99,6
101	Bromocriptine	Parlodel	134,3	7,5	126,8	94,4
102	Gatifloxacin	Tequin	131,0	3,4	127,6	97,4
103	Flutamid	Eulexin, Fugerel	128,0	5,9	122,1	95,4
104	Levofloxacin	Levaquin, Tavanic	126,5	0,7	125,8	99,4
105	Clonazepam	Klonopin, Rivotril	124,2	2,7	121,5	97,8
106	Sulpiride	Dogmatil	123,7	16,1	107,6	87,0
107	Cilazapril	Dynorm, Inhibace	122,1	5,7	116,4	95,3
razem			89.441,3	5.840,4	83.600,9	93,5

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## Merger mania

Consolidation processes can be observed in different branches of industry, trade and services. Companies, even very large ones, merge to create even larger entities. A high number of mergers makes us presume that they have advantages. In the era of globalization and growing competition, large organisms seem to find it easier to live and survive.

Like in other industries, there are mergers in the pharmaceutical industry. Ciba merges with Geigy. Sandoz merges with Wander. Ciba-Geigy merges with Sandoz (Sandoz-Wander) to create Novartis.

The merger trend goes beyond state borders. American Smith Kline & French merges with British Beecham. Gigantic Smith Kline Beecham joins British Glaxo, which even before was a conglomerate of a few companies, including powerful Wellcome. Italian Farmitalia merges with Swedish Pharmacia, which even after the 'wedding' with Upjohn feels too small, and thus joins American Pfizer.

In none of the aforementioned cases a poorly doing company was taken over by a well-doing company. Mergers are concerned with companies in a good condition, ones that did not need merger in terms of economic indexes.

What can we then explain these decisions with? In my opinion - with fear.

In the pharmaceutical industry (we are talking about brand industry, not generic companies) huge, unimaginable profits are earned. The medicines are patent - protected. Any price can be charged for them. Profitability is 1000%.

There would be no reason for fear if all the products of a pharmaceutical company were equally successful and all of them endlessly patented.

However, patent protection is not eternal: it used to be 15, 16, 17, now it is 20 years. After the protection period expires, anybody can manufacture the medicine, and thus its price falls many times. In front of me I have information from New Zealand. The patent protection of Cetirizine (Zyrtec) has just expired there. The price has fallen from NZ\$ 26.00 to NZ\$2.50 for 30 tablets.

Each large company has one, two, sometimes three dairy cows, let us say Cetirizines. Geigy's bestseller was Diclofenac (Voltaren). The management of Geigy knew that there were small chances of starting production and sale of a new, equally profitable medicine after Voltaren's patent 'death'. The company was not on the brink of bankruptcy, because it had

many other valuable medicines in its portfolio, but it had to assume considerably reduced profits.

Merger with another powerful company increases the security of 'soft landing' after the bestseller patent ends. The owners (stockholders or shareholders) and their supervisory boards are only interested in profits. A dramatic reduction in profits is - they will say - the CEO's fault; he must be thrown away. The CEO has the right to be afraid.

Let's take Swedish Astra for example. A magnificent company that launched great product, Omeprazol, sold as Losec or Prilosec. Annual sales of the medicine exceeded 6 billion US dollars. Profits probably exceeded 5 billion. But the patent expired. The price had to fall. Astra does not have any other products of similar scale. Let's make a merger then. With whom? The choice was English Zeneca. This company knows the pain. Today's Zeneca is former ICI (Imperial Chemical Industries). Some time ago it launched a great product, Propranolol. Commercial name: Inderal. It was the first betablocker, which was making billions of pounds for years. But it ceased to make them, because the patent expired. Today you can buy Propranolol for pennies.

Very high prices for new medicine pose risks. If the company fails to launch a new bestseller to replace Omeprazol or Propranolol, the fear looks inward, though the company still remains very good. Astronomic profits must fall after the patent protection expires.

The example of Astra and Zeneca and their merger is not extraordinary. It illustrates a common phenomenon in the brand pharmaceutical industry. The production and sales of the whole pharmaceutical industry, chiefly brand, amounts to 350-400 billion US dollars. There are many companies in the industry, but the bulk of production, ca 200 billion, is concentrated in about twenty companies. And thus one 'big fish' on average produces and sells medicines for 10 billion US dollars a year. These sales are composed of many products, but the profits are generated by two, three, rarely more preparations. Here are the examples of 2001.

Pfizer:

Lipitor (Atorvastatin)	US\$ 5.03 billion
Norvasc (Amlodipine)	US\$ 3.36 billion
Celebrex (Celecoxib)	<u>US\$ 2.61 billion</u>
	US\$ 11.00 billion

Merck & Co:

Zocor (Simvastatin)	US\$ 5.28 billion
Vioxx (Rofecoxib)	US\$ 2.16 billion
Vasotec (Enalapril)	<u>US\$ 1.79 billion</u>
	US\$ 9.23 billion

BristolMyersSquibb:

Pravachol (Pravastatin)	US\$ 1.82 billion
Glucophage (Metformine)	US\$ 1.73 billion
Taxol (Paclitaxel)	<u>US\$ 1.59 billion</u>
	US\$ 5.14 billion

Eli Lilly:

Prozac (Fluoxetine)	US\$ 2.58 billion
Zyprexa (Olanzapine)	<u>US\$ 2.37 billion</u>
	US\$ 4.95 billion

Schering-Plough:

Claritin (Loratadine)	US\$ 3.01 billion
Intron A (Interferon alfa)	<u>US\$ 1.36 billion</u>
	US\$ 4.37 billion

GlaxoSmithKline:

Paxil (Paroxetine)	US\$ 2.35 billion
Augmentin (Amoxicillin +Acid.clavul.)	<u>US\$ 1.85 billion</u>
	US\$ 4.20 billion

The breakdown of American Merck's Zocor (Simvastatin) is a catastrophe. But the breakdown must happen, because there is no patent any longer.

Pfizer's 8.4 billion dollars is made up of 2 medicines that are no longer patent-protected. There is much to be afraid of. The merger with Warner Lambert (Parke Davis) was not sufficient. It was decided to go forward with another merger with Pharmacia.

Bristol Myers Squibb makes over 5 billion dollars on three medicines that are no longer patent-protected. Has the company the right to think what next?

Mergers in the pharmaceutical industry are logically justified. American Smith Kline French demonstrated wisdom merging with British Glaxo, which had merged with Wellcome. SKF invented brilliant Cimetidine, sold as Tagamet, on which it was earning billions. After the patent protection expired, though Cimetidine still remained effective, Tagamet revenues fell dramatically. SKF would not have survived this crash on their own. But they succeeded in good company with Beecham, and then with Glaxo.

Many economists believe the version that is morally convenient for pharmaceutical industries claiming that mergers are necessary to collect enormous funds for research and development. The development of a new medicine is supposed to cost 500 million dollars and more - they say.

The brand industry promotes the version of very high new medicine

costs to justify immoral prices. It is not morally proper for Bayer to charge for Adalat (Nifedipine) a 10 times higher price than that of the competitors now, long after the patent protection expired, and 20-30 times higher during the period of patent protection. Such pricing freedom is the case for all new brand medicines. Certainly, to a different extent.

Nobody can claim that the development and testing of a new medicine never costs as much as 500 million dollars. However, the vast majority of new medicines are congeners, namely chemical compounds similar to already existing chemical compounds that have proved successful in therapy. It is very cheap to synthesize such congeners, and clinical tests are also easier. For instance, Amlodipine is a simple, easy to manufacture congener of Nifedipine. It could be synthesized very fast, then tested and registered with no long-term delay. Pfizer was not morally entitled to charge a very high price for Amlodipine (Norvasc brand name), but it did and continues to do it.

If the presented study of the reasons for accelerated mergers in the pharmaceutical industry is correct, the process cannot be stopped. The process that we have been witnessing yesterday and today will go on tomorrow. It will go on until just a few large giants emerge to whom the Anti-Monopoly Office or even the US Congress will say: no, we do not agree to that, we are afraid of oligopoly that easily turns into monopoly.

Negative effects of pharmaceutical mergers will be inevitable. They will primarily be concerned with slower pharmaceutical progress.

Pharmaceutical progress consists in giving the world new (better) medicines.

New medicines are created owing to three progress drivers:

#### 1) Primary sciences

Good examples are penicillin in bacteriology, insulin in endocrinology, acetylsalicylic acid in chemistry. By the way, it was not Bayer that invented acetylsalicylic acid; Bayer invented a name for it 100 years ago: Aspirin. Then promotion.

#### 2) Lucky fortune

A famous example is brilliant neuroleptic medicine, Chlorpromazine (Largactil). It made a breakthrough in psychiatry, and brought billions of dollars to the lucky company, Specia (Rhône-Poulenc). Or Sildenafil (Viagra) making over a billion dollars a year to Pfizer. Without heavy R&D investments.

#### 3) Manipulated congeners.

Always when a new good fortune-making medicine appears in the world, we can witness an outburst of competitive inventiveness and patent by-passes.

A dozen of similar phenothiazines was made after Chlorpromazine (Largactil).

Two dozens of similar betablockers was made after Propranolol.

Many similar thiazide diuretics were made after Chlorothiazide. This easy money is made by pharmaceutical companies without any inhibition. Money is easy as it takes no great genius, after the success of Chlorothiazid (Diuril sold by Merck & Co), to saturate with hydrogen one non-saturated bond in this compound and offer Hydrochlorothiazid (Ciba's Esidrex).

All companies manipulating easy congeners are proudly named an innovative industry. Exaggeration.

Why health agencies do accept and register many congeners? Because among them happen to be some progress-making medicines. Metoprolol and Atenolol, congeners, are better than the first Propranolol. Hydrochlorothiazid's advantages are greater than those of Chlorothiazid. And thus there is no doubt that competition among branded industries is a progress driver.

Similarly, there is no doubt that mergers of pharmaceutical companies are progress inhibitors.

20 years ago ambitious large companies that wanted to create new medicines were: Hoechst, Bayer, Roche, Merck, Ciba-Geigy, Sandoz, Pfizer, Lilly, Takeda, Boehringer Ingelheim, Boehringer Mannheim, Warner Lambert, Parke Davis, Rhône-Poulenc, Upjohn, Bristol-Myers, Squibb, Schering-Plough, Schering AG, Abbott, Smith Kline, Glaxo, Sterling-Winthrop, Beecham, ICI (Zeneca), Astra, Pharmacia.

Today Farmitalia, Pharmacia, Upjohn, Parke Davis, Warner Lambert no longer exist; they are part of Pfizer. There is no Beecham, Smith Kline, Glaxo, let alone Wellcome. There is only one company GlaxoSmithKline. Ciba-Geigy and Sandoz is now one company, Novartis. Great German Hoechst and the largest French company Rhône-Poulenc do not exist any longer. They create Aventis. Before, Hoechst had merged with Roussel-Uclaf, and Rhône-Poulenc had taken over American Rorer. Roche absorbed Boehringer - Mannheim. Bristol Myers fused with Squibb, ICI (Zeneca) with Astra.

Over 20 years the number of independent entities capable of conducting their own research decreased by a half, from about 30 to about 15.

One giant company does not need 2 pills, 2 betablockers, even if they were very good, e.g. Atenolol or Metoprolol. The firm cannot say to millions of doctors around the world that two betablockers are the best. Only one can be the best. Even if it is not the best.

This was experienced by Merck & Co. The company developed and launched two statins: first Lovastatin (Mevacor), later Simvastatin (Zocor). Both are chemically almost identical and similarly ideal in therapy. But it does not make sense to promote both. Scattered promotion let Pfizer's Atorvastatin take the lead among statins.

Mergers among pharmaceutical companies inevitably reduce the industry's demand for new inventions.



Let's assume that the merger mania will create 5 giant pharmaceutical companies in the world. Each will have one statin, one pril, one betablocker. Each of the companies will not make the second betablocker, since it costs a lot to promote the second medicine, and sales of the second medicine will reduce sales of the first one.

The merger mania will not only reduce the number of new medicines, but also the number of better medicines; it will inhibit progress in pharmacy and medicine. It is easy and simple to demonstrate using an example e.g. betablockers.

The first Propranolol produced by ICI (Inderal) induced admiration. It was a financial success for the company. Other companies also wanted profit. The congeners followed: Ciba's Oxprenolol (Trasicor), Sandoz's Pindolol (Visken), Merck's Timolol (Timoptic). If there were only few companies, this would have been it. But there were many companies, each developing its own betablocker. Owing to this process, luckily, we obtained selective betablockers: ICI's Atenolol (Tenormin), Astra's Metoprolol (Beloc), Specia/Rhône-Poulenc's Acebutolol (Sectral), which contributed to progress in cardiology.

These examples show that mergers decreasing the number of companies capable of competing in terms of invention is not in the interest of health.

It seems that there is time to ensure a more careful anti-monopoly supervision over mergers in the pharmaceutical industry. Certainly the pharmaceutical companies' need for mergers will not disappear. On the contrary, it will be getting stronger, as the profits generated by new patented medicines are growing and so is the fear of breakdown after patent expiration. This fear must be discharged through subsequent mergers.

Governments and parliaments in developed countries can oppose this process by refusing consent to mergers of those great companies that are capable of inventing new medicines on their own.