Fpt Securities

PHARMACEUTICAL SECTOR REPORT

April 2014

HIGH QUALITY GENERICS DRUGS THE FUTURE OF VIETNAMESE PHARMACEUTICAL INDUSTRY

"…It is a dominant trend to upgrade manufacturing facilities to international standards given the fact that foreign pharmaceutical corporations are readily penetrating into the domestic market …"

Hoang Hieu Tri

Senior Analyst

E: trihh@fpts.com.vn

P: (08) – 6290 8686 – Ext: 7596

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HIGHLIGHTS

Global pharmaceutical industry: There is a big gap between developed and pharmerging countries.

- The US, Japan and Canada are the top 3 countries that have the highest total drug spent per capita in the world, about $800 per year.
- Drug spent CAGR of developed countries is slowing down, at about 1% - 4% per year.
- Drugs for cancer, diabetes, respiratory disease, etc. will be focused on manufacturing from now to 2016.
- Top 20 pharmaceutical corporations will account for 59% global drug spent in 2016.
- The rising of 17 pharmerging countries, leading by China, India and Brazil, will be impressive. The average growth rate of this group ranges from 11% - 14% per year.
- Generic drugs remain the optimal choice for developing countries. In long-term, however, its consumption is forecasted to occupy only 10% of global drug spent.
- China and India will become two global largest manufacturers of raw APIs and finished drugs.

Vietnam pharmaceutical industry: Enormous potential for growth and profitable investment.

- Drug spent per capita in Vietnam reached $33 in 2013.
- Vietnamese manufacturers can only make drugs from imported raw materials and still far from self-reliance in producing raw medicinal materials and inventing a new drug.
- The CAGR of the industry in the two phases of 2008-2012 and 2013-2018 are 23% and 17.5%, respectively.
- More than 51% of raw medicinal materials are imported from China, followed by India with 18%.
- The development scheme for domestic pharmaceutical industry is gloomy. Popular drugs production is the top priority while specialized drugs, with higher value, are under controlled by foreign companies.
- Management policies are being adjusted to support the domestic pharmaceutical industry.
- Manufacturing factories are struggling to meet international standards such as PIC/S – GMP, EU – GMP so as to produce high quality drugs and are thus more likely to win a contract for ETC and expand export markets.
- Outsourcing production and franchised production is the shortest and most effective way to keep up with the world pharmaceutical industry.

Recommendation:

The entire domestic market currently has 15 listed pharmaceutical (as well as health service) companies, and more than 180 other drug companies. In this report, the following 5 companies are highly recommended for investment:

- **DHG Pharma (DHG – HOSE) – SELL:** Target price in the next 12 months: VND114.000 per share **(-19%)**
  Based on our concerns about their development orientation after the rapid growth phase and their transferring management responsibilities to the next generation.
- **Imexpharm (IMP – HOSE) – BUY:** Target price in the next 12 months: VND73,000 per share **(+30%)**
  Based on their promising development orientation that takes priority over drug quality.

  Based on their improved performance thanks to changing the target market.

  Based on the possibility of strategic cooperation with foreign corporations (with a high risk of acquisition)
- **Domesco (DMC – HOSE) – ADD:** Target price in the next 12 months: 49,000 dong/share **(+15%)**
  Based on their remarkably positive transformation with the assistance of their major shareholder CFR (Chile – 45% of total shares).
  Based on the huge potential of medicines for cardiovascular, diabetes and obesity, etc.
- **Pymepharco** (unlisted) **– POTENTIAL:** Based on their outstanding performance and right development orientation.
- **Bidiphar 1** (unlisted) **– POTENTIAL:** Based on our high expectations for their high quality lines of cancer injection drugs manufactured in Vietnam for the very first time.

A. OVERVIEW OF THE WORLDWIDE PHARMACEUTICAL INDUSTRY

A | A.1 History and development

The modern pharmaceutical era can be traced back to the twenties of the last century. In terms of industrial development, this pharmaceutical industry is about to reach its 50 years of age.

From late 19th to early 20th century, most of the current pharmaceutical corporations were founded. Among the first to top the pharmaceutical industry were Switzerland, Germany and Italy, followed by England, the US, Belgium and Netherlands.

In the 60s, an abundance of pills created in the 50s went into mass production and was launched into the markets. The most distinguished among those were "The Pill" (contraceptives), Cortisone (blood pressure), and other cures for cardiovascular diseases or anti-depressants.

Since the 70s, drugs for cancer have been widely consumed boosting the world's pharmaceutical industry. Some legal provisions that patent drugs are entitled to be sold at a high price to make up for the investment expenditure were legally enforceable in many countries.

Mid 80s witnessed a growing trend in mergers and acquisitions (aka M&A). After this phase, drug manufacturing was under control of some giant corporations and they were bound to entirely dominate global consumption.

Starting from 90s, pharmaceutical business underwent a drastic change with trading practice done in a truly global scale and substantial investment made in experimenting new drugs and clinical trials.

In 1997, numerous commercial advertisement were broadcast on radio and TV. The Internet also enabled consumers to directly order drugs from pharmaceutical companies and pharmaceutical companies themselves could directly purchase materials from suppliers as well. This transformation has basically changed the whole business environment.

In the present time, high demands for nutritional supplements and alternative pharmaceutical products are boosting chances for newly-born manufacturers and therefore creating a lot of competition between pharmaceutical companies. Meanwhile, much controversy is raging over the side effects of drugs and shady marketing strategies employed by those pharmaceutical companies.

In the foreseeable future, natural raw pharmaceutical materials and plant-based drugs will be emerging as a prevailing trend for more heath-friendly medicines with fewer side effects.

To recap, the consistent trend of pharmaceutical industry is to invent cures for new diseases and current malignant cancers. Attention is being focused onto efficacy and health-friendliness.

A A.2 Current and forecasted drug consumption

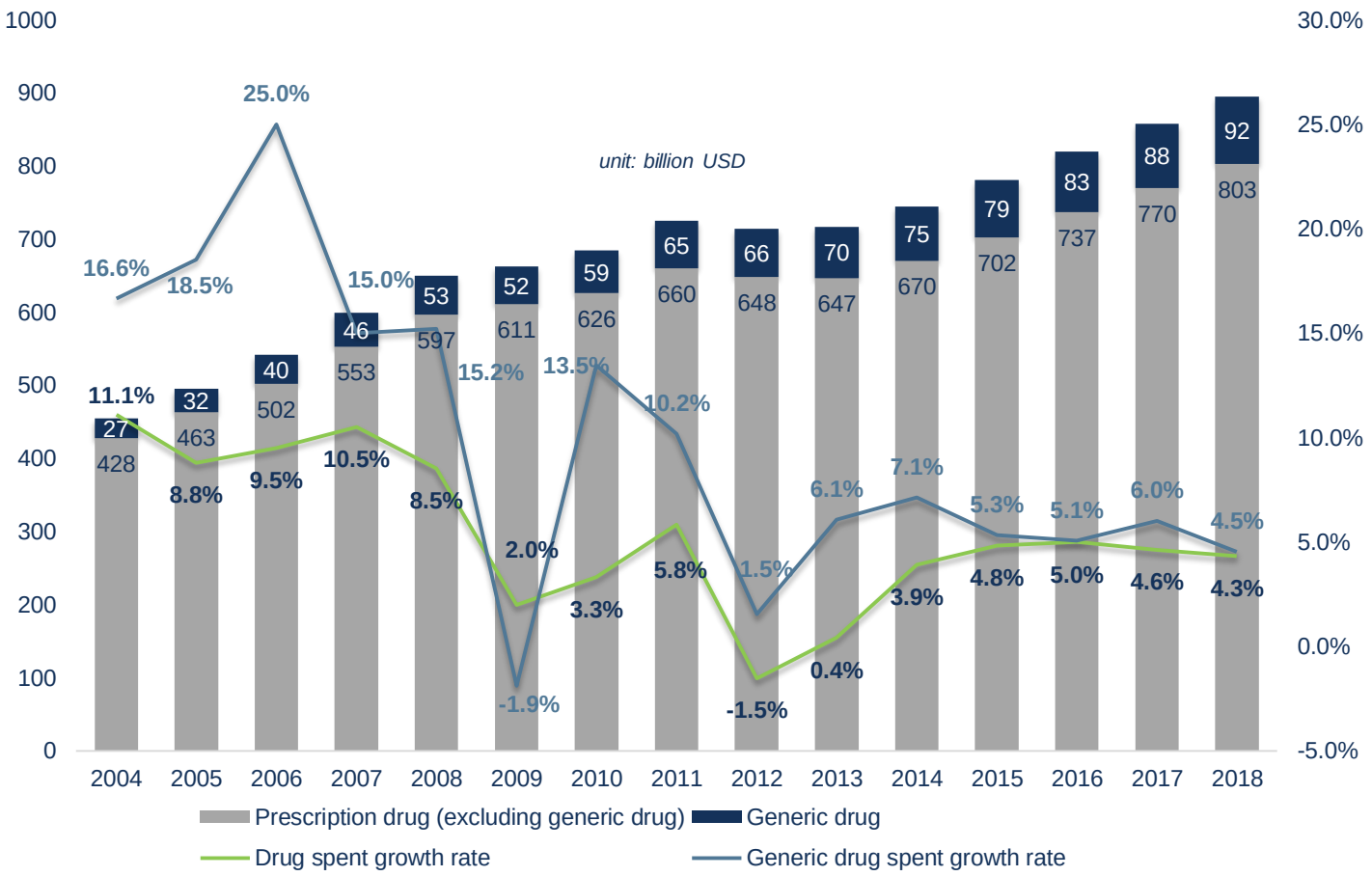
In the 2004-2013 period, the global drug spent has achieved a steady growth of an average 5.8% per year from USD455 bn in 2004 and subsequently reaching USD717 bn in 2013. According to EvaluatePharma, total global drug spent will reached USD900 bn in 2018.

Average growth rate during 2014-2018 period will be around 5.7% per year. That is to say the average growth rate of patent drugs will be 5.5% per year, compared with that of generic drugs - about 7.1% per year.

Generic drugs are expected to cover a tiny proportion of global drug consumption. The percentage is specifically forecast to be about 10.3%, making little difference from the 9.8% rate in 2013. The root cause lies at the fact that human beings, with prolonged exposure to pollution and toxic chemicals, are sufferers from more and more diseases, let alone obscure diseases such as cancer and genetic defects.

Despite higher growth rates of generic drugs, inventing new drugs still remains a steady trend due to certain constraints on patent protection in developed and even in developing countries (pharmerging countries) which make it unlikely to change such proportions.

Total global drug spent in the period of 2004 – 2018



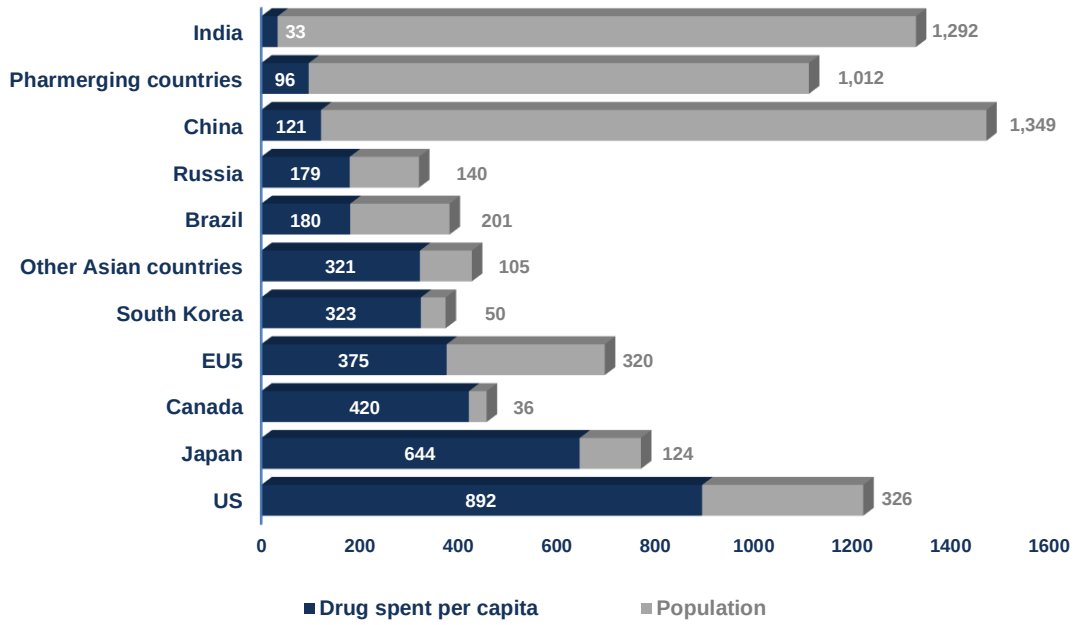
Source: EvaluatePharma, FPTS

A A.3 Drug consumption in countries and its projection

The USA, Japan and Canada, in spite of their sparse population of above 485 million, are among the top three of the world's highest drug spent per capita with an average of USD800 per year, constituting 55% of total drug use.

The global drug spent per capita is around USD186. Compared with this rate, India, a country of more than 1.2 bn people, however, sinks to the bottom of the list in terms of average drug spent. Low per capita drug spent also go to the group of developing countries including Vietnam (48% lower than the world's rate). China is also relatively low in drug spent per capita with only about USD121 per year.

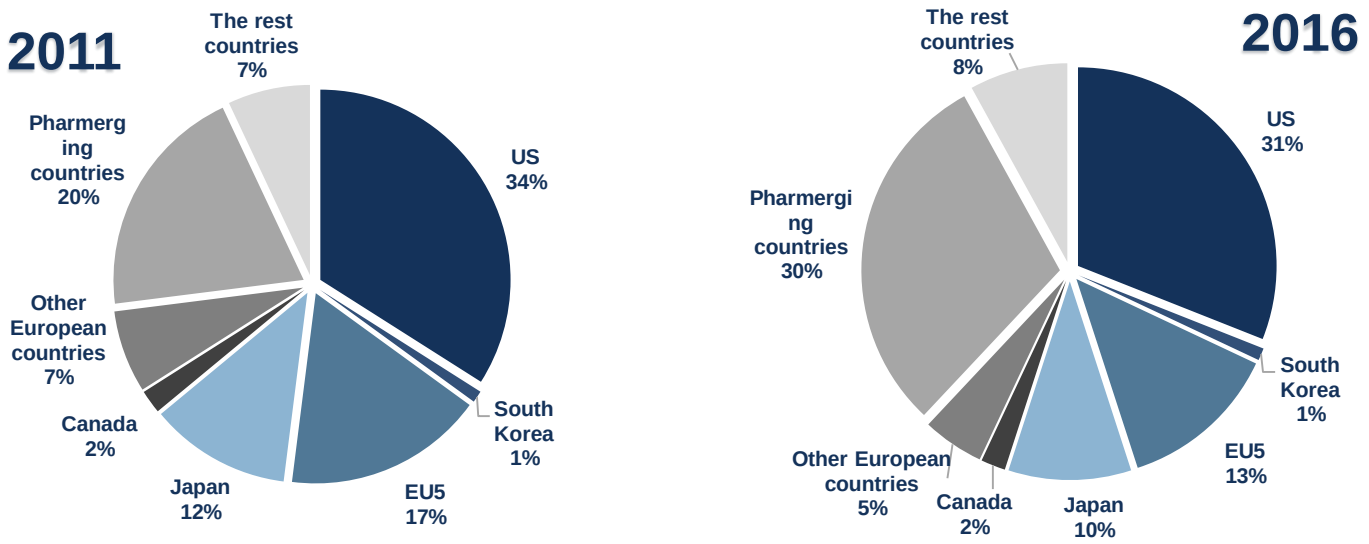
Correlation between drug spent per capita (USD) and population (million people)



Source: IMS Health, FPTS

With their combined total population of about 3.7 bn (making up above 50% the world's population), India, China and other pharmerging countries are bound to be booming markets in the near future. As projected by IMS Health, proportion of drug spent from pharmerging countries will rise from 20% in 2011 to 30% of total drug spent in 2016.

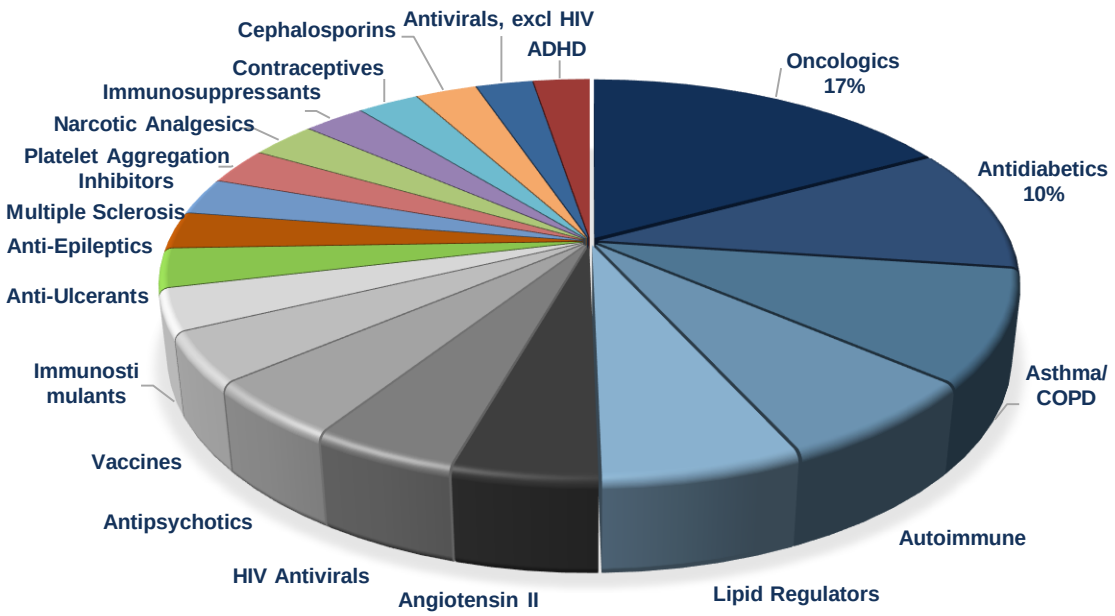
Total drug spent structure by nation



Source: IMS Health, FPTS

50% of total drug spent is now on the main 5 groups: Oncologic (cancer), Antidiabetics, asthma, autoimmune and lipid regulators. These illnesses are attributable to the environmental pollution reaching alarming levels on a global scale.

Top 20 Global Therapy Areas in 2016



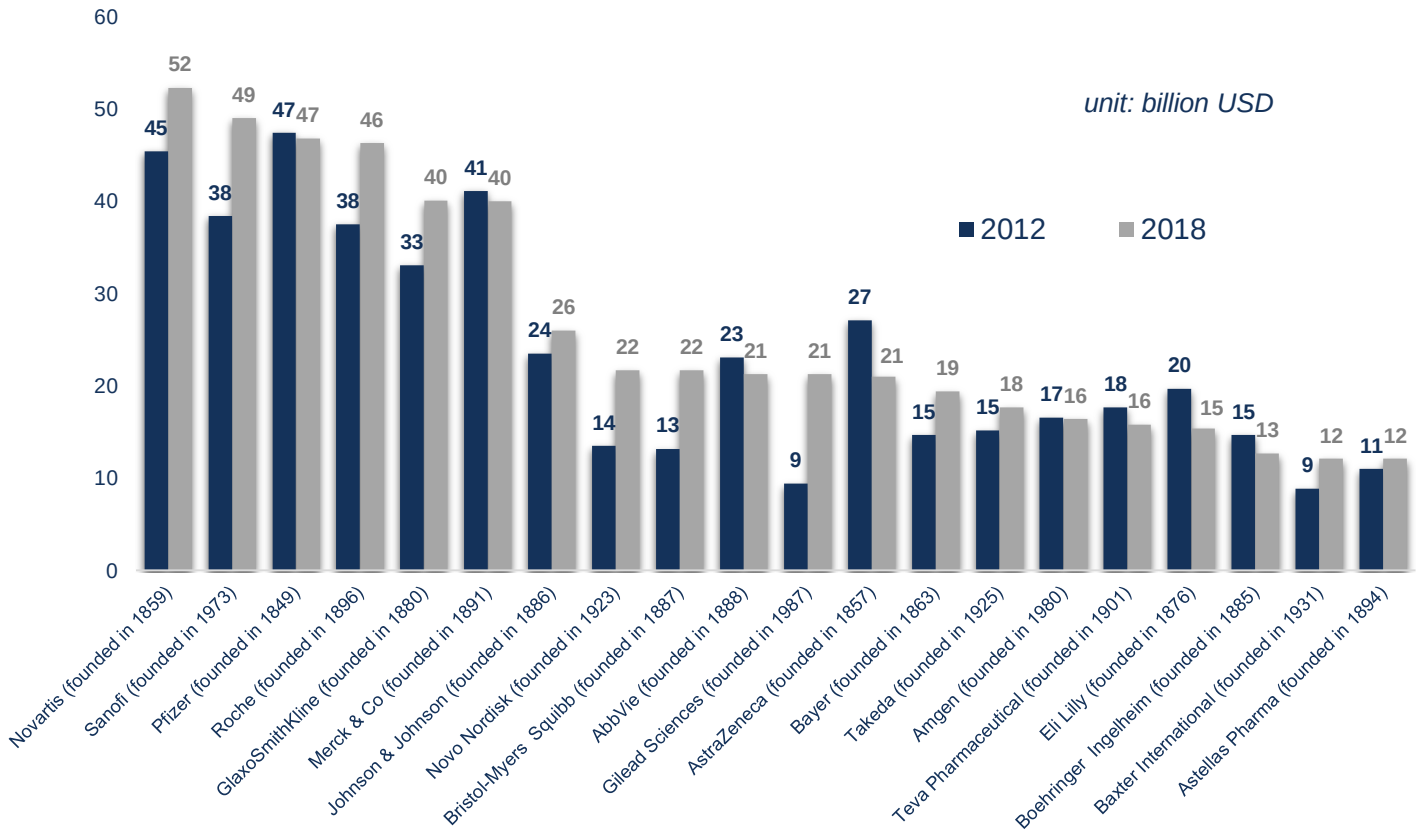
Source: IMS Health, FPTS

A A.4 Leading pharmaceutical companies and growth forecast

Top 20 highest revenue pharmaceutical companies in the world concentrate mostly in North America (The US, Canada) and in Western Europe (UK, France, Germany, Italy, Spain, Switzerland, etc.)

Total revenue derived from this enterprising group in 2012 went up to USD471 bn, making up 66% of total global drug use. According to EvaluatePharma, the figure in 2018 will add up to USD529 bn (12% higher than that in 2012 – with an average 2% rise per year) and will only comprise 59% of total global drug spent (7% lower due to some pharmerging countries among which are China, India, Russia and Brazil).

Top 20 global-leading pharmaceutical companies by net revenue in 2012/2018



Source: EvaluatePharma, FPTS

Over the past hundred years starting from the late 19th, some large pharmaceutical corporations scaled up going beyond their national borders to become multi-national corporations with their comprehensive global coverage.

These corporations' actual growth rate has dropped to the sustainable growth rate of about 1% - 4% per year. Especially, France and Spain are the two countries that may experience negative growth during 2012-2017 period due to saturated domestic market and population ageing. Japan, on the other hand, is the only Asian country with its growth rate greater than the developed industry average.

As for pharmerging countries, growth rate in the coming years proves very promising thanks to their domestic drug spent keeping at a relatively low rate. China, in particular, takes the lead

with an impressive rate of 15%-18%. Besides, among the 3rd group of pharmerging countries, Vietnam still maintains a quite high growth rate of about 17.5% per year.

Average growth rate estimation for each market group

Total drug spent CAGR 2012-2017 of developed markets	
US	1 - 4%
Japan	2 - 5%
Germany	1 - 4%
France	(-1) - 2%
Italia	0 - 3%
Canada	1 - 4%
Spain	(-4) - (-1)%
UK	1 - 4%
Average growth rate	**1 - 4%**

Total drug spent CAGR 2012-2017 of pharmerging markets	
Group 1: China	15 - 18%
Group 2	10 - 13%
Brazil	11 - 14%
Russia	9 - 12%
India	11 - 14%
Group 3	7 - 10%
Average growth rate	**11 - 14%**

Source: IMS Health, FPTS

A A.5 VALUE CHAIN IN PHARMACEUTICAL MANUFACTURING

STEP 1: INVENTING DRUGS

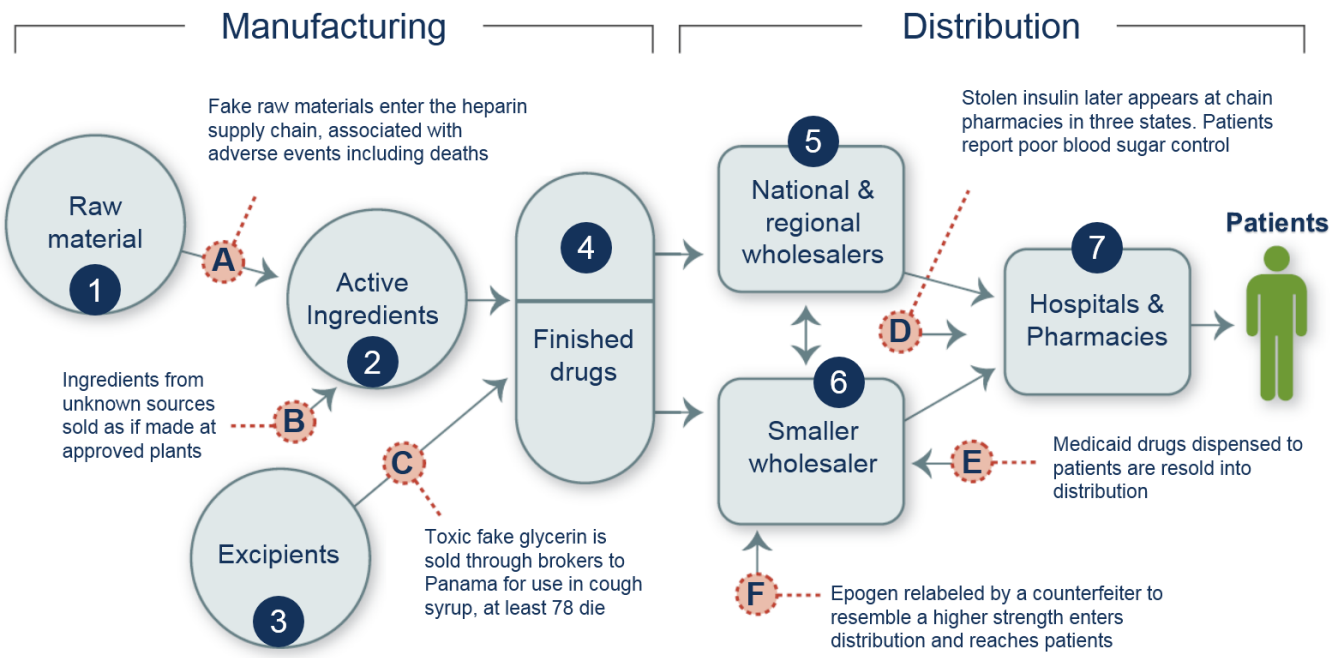
Inventing any new drug is always the most costly and time-consuming process along the entire value chain. Everything is started from scratch from finding the active pharmaceutical ingredients (APIs) ➔ animal testing ➔ human clinical trials ➔ larger scale of human clinical trials ➔ obtain regulatory approvals, etc*… (click here for more details)*

The total cost may range from hundreds of USD to billions of USD with the chance for a new drug to actually make it to the market being only 20%. Patent-protected drugs are therefore sold at high prices to make up for the experimenting cost and post-launch product safety expenditures.

A | A.5 | VALUE CHAIN IN PHARMACEUTICAL MANUFACTURING

STEP 2: MANUFACTURE & DISTRIBUTE

Value chain in pharmaceutical manufacturing & distribution – Risk of low quality drugs



Source: Pew, FPTS

1 Gross profit margin of this group is about **46.6%** **(Mallinckrodt 2013)**	In the past few decades, there have been great changes in pharmaceutical manufacturing activities with China, India and Pakistan being the largest raw material manufacturing countries. According to the latest statistics, in 2007, China and India supplied for nearly 70% of raw materials worldwide compared with the 49% rate in 2004... *(See more details)*
2	Main active ingredients are decisive components for treatment. The more purity these main active ingredients have, the more effective they are... *(See more details)*
3	The excipients are no cure for the disease but plays an essential part in the efficacy of the drug... *(See more details)*
4	Finished drugs are prone to loss or being counterfeited though such cases are not very common... *(See more details)*
5	There are many organizations involved in the drug distribution multi-processes. However, in the world, manufacturers and distributers are basically independent units with their own expertise…*(See more details)*

6	Wholesalers will distribute drugs to central hospitals or to wholesalers of smaller scale or to secondary distributors. These secondary distributors often supply drugs to small hospitals, clinics and small drugstores that are all too small to be eligible for ordering drugs in bulk from leading wholesalers… *(See more details)*
7	In the US and many European countries, doctors in hospitals and clinics all have an appropriate prescription regime. Prescription drugs are thereby sold in boxes for the sake of convenience in controlling the drugs' prices with the help of the barcode printed on each drug box…*(See more details)*

A A.6 GENERIC DRUGS – AN IDEAL SOLUTION FOR PHARMERGING COUNTRIES

A Generic drug (short: generics) is a drug which is produced and distributed once the patent protections have expired. Generic drugs are usually substantially cheaper than innovator drugs (patent drugs) because generic drug manufacturers do not incur the initial experimenting cost and such drugs are thus very affordable to the market in developing and underdeveloped countries.

Prior to 2000, generic drugs accounted for only a small proportion of the structure of global pharmaceutical sales. However, in recent years, with the rise of pharmerging countries (accounting for 50% of the world's population), generic drug manufacturing industry has been growing stronger than ever. In 2004, the proportion of global generics constituted only 5.9% of total drug use. This proportion rose sharply up to 10% in a short period of time in 2013.

However, according to experts, although the proportion of generic drugs has increased in number but they are still inferior to innovator drugs in terms of value. Consequently, the proportion of the global generics is projected to remain at the stable 10% rate.

(See more details about HIGH QUALITY and LOW QUALITY generic drugs)

B. OVERVIEW OF PHARMACEUTICAL INDUSTRY IN VIETNAM

B | B.1 History and development

During the period of Chinese domination, with influences from both geographical proximity and political relations, Vietnam traditional medicine displayed several shared characteristics with Chinese traditional medicine. Exchanges of knowledge and treatment experience along with typical local herbs laid a solid foundation for the entire Vietnam pharmaceutical industry in general and its oriental medicine in particular.

With the event in 938 marking the end of Chinese domination period, Vietnam medicine and pharmaceutical industry enjoyed its continued success. Ever since the Ly, the Tran, the Ho, the Later Le, the Tay Son and the Nguyen Dynasty, the traditional medicine has won a lot of attention.

In 1858, western medicine was brought in to Vietnam by French invaders. In 1902, Hanoi medicine school was established, followed by the birth of some hospitals and dispensaries in certain cities, countries and districts. Under the pressure of French invaders, many pharmacists were forbidden from opening drugstores. Also, the traditional pharmaceutical experimenting institutes ware hindered by French invaders and so was the oriental medicine sector.

During 1946 - 1954, the war against France took place. The pharmaceutical industry was hampered by the lack of pharmacists, workers, equipment and facilities as well as management experience. The entire industry managed to be self-reliant in medicine production, taking advantage of all available local herbs. As a result, Vietnam was able to produce military medicines, Filatov, syringes, medical pincers, scalpels, needles, to name just a few. Also in this period, the government set up some pharmaceutical schools in Thanh Hoa province and some pharmaceutical universities or pharmacy classes in VietBac war zone.

During 1954 - 1975, the North transformed proprietorships in pharmaceutical industry into a state-owned industry. 1965 witnessed a sharp increase in drug use making it a popular activity to cultivate and use medicinal plants for “Southern Medicine”. An elaborate network of manufacturing was thereby created to enable self-sufficiency in drug use across local areas.

After 1975, Vietnam pharmaceutical industry went through 3 main phases:

Phase I (1975 - 1990): Manufacturers are mainly state-run companies with small production capacity. The average drug spent per capita was quite low at about 0.5 - 1 USD per year. Because of their rarity, quality of drugs was not of great concern.

Phase II (1990 - 2005) experienced an explosive growth of drugstores and pharmaceutical companies with a variety of finished drugs. Especially after the implementation of Central Resolution 4 and Decision 58, the pharmaceutical industry has made considerable progress and could finally meet the drug demand, which had experienced shortage problems years earlier. Also, many privatization measures were taken according to the policy laid down by the government.

Phase III (from 2005 onwards): Drug companies have managed to boast a standard equivalent to GMP-ASEAN, and subsequently, to GMP-WHO, PIC/S and EU-GMP, etc. This is an essential thing to do given the fact that high quality drugs are more and more desirable and that Vietnam pharmaceutical industry can prove itself eligible to integrate into the entire world.

B B.2 Development and position in the world's pharmaceutical industry

According to the division and classification of the drug industry made by the United Nations Industrial Development Organization (UNIDO), there are 5 levels of development. Similarly, the World Health Organization (WHO) and the United Nations Conference on Trade and Development (UNCTAD) identify the 4 levels in terms of pharmaceutical industry development.

- Level 1: Countries where medicines are imported entirely from abroad.
- Level 2: Countries that can manufacture certain types of generics but are still dependent upon drug imports.
- **Level 3: Countries that have domestic pharmaceutical industry and manufacture generics as well as export some pharmaceutical products to other countries.**
- Level 4: Countries that can produce medicinal raw materials and invent new drugs.

Based on the criteria above, Vietnam pharmaceutical industry is kept at pre-level 3 according to WHO's classification scale. Likewise, it only attains level 3 on the 5-level development scale of UNIDO. This is to say, Vietnam has a domestic pharmaceutical industry mainly specializing in manufacturing drugs from imported raw materials.

Pharmaceutical industry in Vietnam is still poorly developed through lack of uniformity in planning, policy-making and supporting industries, etc. Consequently, Vietnam has so far got only Mekophar to manufacture semi-synthetic antibiotics with its design capacity of about 200 tons Amoxicillin and 100 tons Ampicillin per year that can only serve their own demand under competition pressure of cheap raw materials from China and India.

Compared with the world's drug industry and according to IMS Health's classification, Vietnam is among the 17 pharmerging countries. The main criteria adopted by IMS Health are based on the annual total drug spent as well as the dynamic level, potential development and flexibility over fluctuations in management policies. These 17 pharmerging countries are divided into 3 smaller groups.

Group 1: China with total drug spent of more than USD40 bn in 2013. This growth rate is attributed to generics being manufactured and marketed by domestic companies and innovator drugs being more desirable in urban areas.

Group 2: Brazil, Russia and India with drug spent of about 5 - 15 bn USD in 2013. Brazil and Russia have been achieved a two-digit growth for the past few years. Meanwhile, India with its emerging middle-class population now notices remarkable improvements in medical facilities and healthcare knowledge.

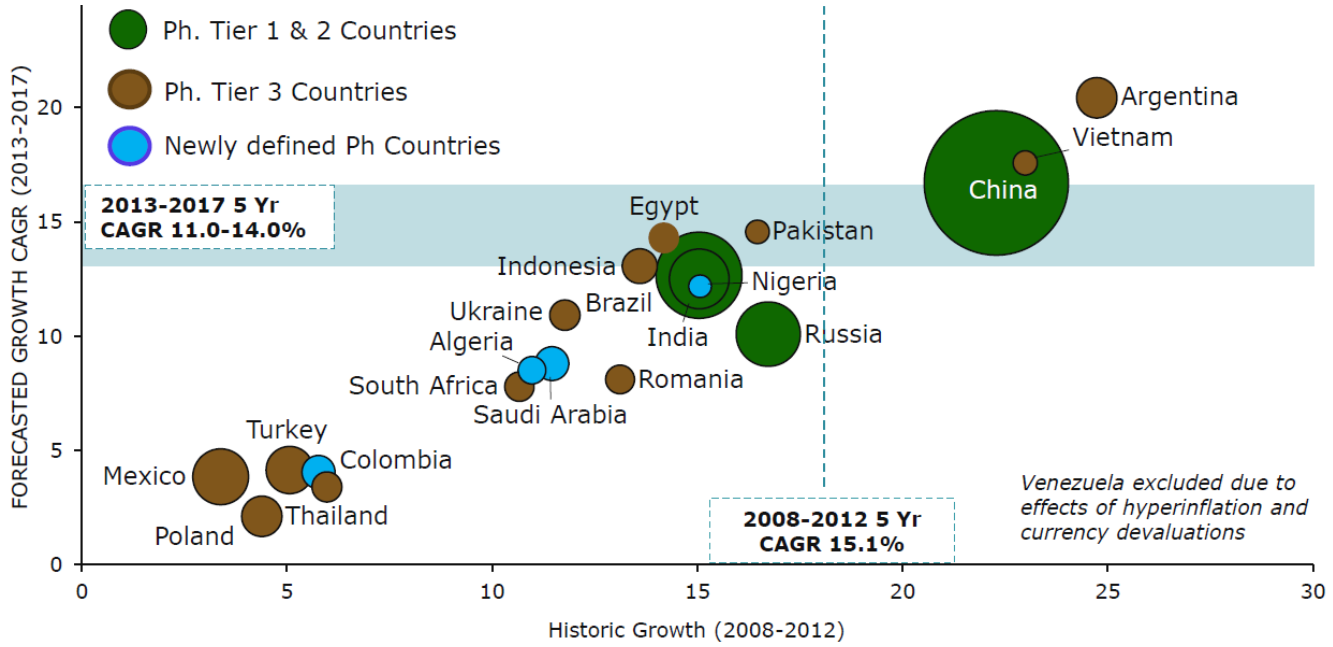
Group 3: This group involves the following 13 countries: Venezuela, Poland, Argentina, Turkey, Mexico, Viet Nam, South Africa, Thailand, Indonesia, Romania, Egypt, Pakistan and Ukraine. These countries had the total drug spent ranging from 1 to 5 bn USD in 2013. Of the three, this group also has the fastest growth rate of up to 20% per year thanks to its adaptability and flexibility over drastic changes in policy-making of local authorities.

B B.3 Our development compared to other neighboring countries

According to IMS Health, revenue growth rate of Vietnam's pharmaceutical companies achieved about 23% during the 2008-2012 period. This is the 2nd highest rate among those pharmerging countries, lower than Argentina (24.8%) and followed by China (22.3%) and other ASEAN countries such as Thailand and Indonesia.

After the 2008-2012 period, the average growth rates of pharmerging countries will tend to slow down in the 2013-2018 period and to be ranged from 11% to 14% per year, in which Viet Nam will maintain their 2nd position at 17.5% per year.

2008 – 2017: Pharmerging Markets Growth Dynamics

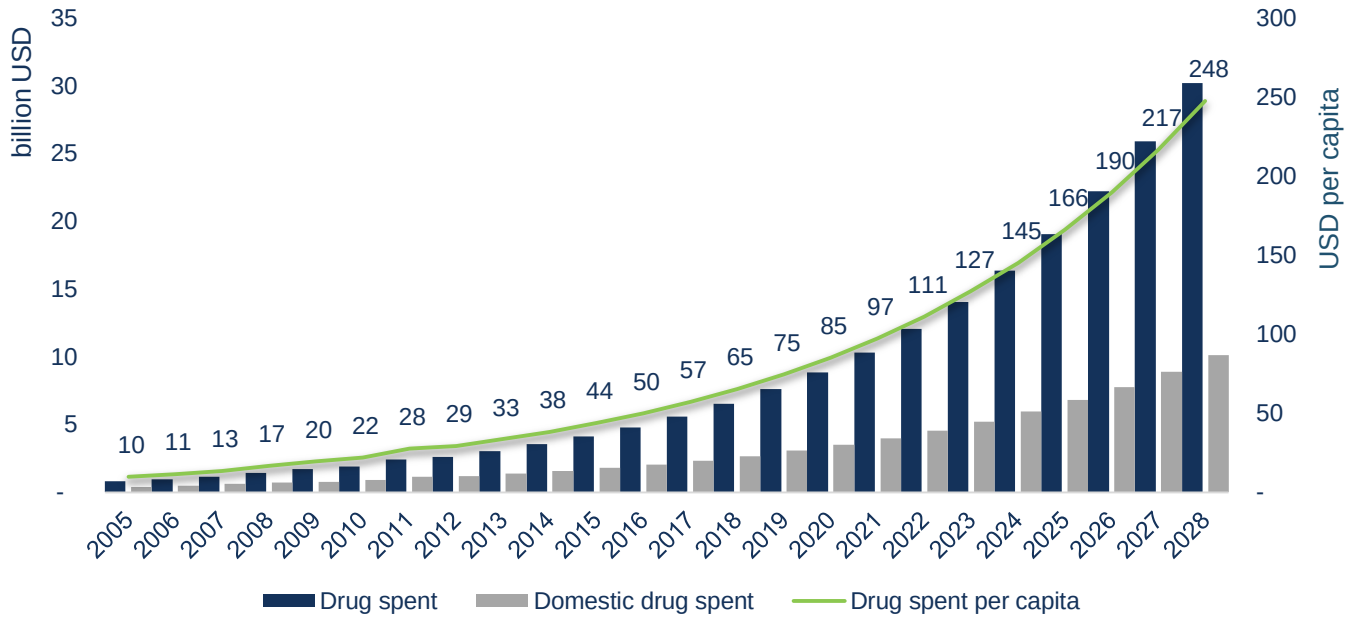


Source: IMS health, FPTS

According to the statistics accumulated from BMI, IMS Health and Drug Administration of Vietnam (DAV), FPTS forecasts some key growth indicators in the 2014-2028 period as follows:

- Vietnam's population growth rate will be about 2% per year and the number will exceed 120 million in 2028.
- Vietnam's drug spent growth rate will be about 17% per year. Such growth is stimulated by increasing demands and medicine prices being pushed up to 8.6% per year.
- Vietnam's total drug spending growth will be 14.3%.

Drug spent per capita & its annual growth in Viet Nam



Source: FPTS

B B.4 Legal regulations issued by the management of Vietnam's pharmaceutical industry

Reliable government agencies in Viet Nam:

- **Ministry of Health: www.moh.gov.vn**
- **Drug Administration (under the Ministry of Health): www.dav.gov.vn**
- **Ministry of Industry and Trade: www.moit.gov.vn**
- **Ministry of Planning and Investment: www.mpi.gov.vn**
- **Ministry of Finance: www.mof.gov.vn**
- **Administration of Price (Ministry of Finance): website**

Statutory provisions that regulate and manage Vietnam's pharmaceutical market

The Pharmacy Law No 34/2005/QH11: This Law provides basic codes in the domain of pharmacy. This Law provides for drug trading; drug registration and circulation; drug use; drug supply; drug information and advertisement; clinical trial of drugs; management of habit-forming drugs, psychotropic drugs, pre-substances used as making drugs and radioactive drugs; drug quality standards and drug testing. This law is being amended to issue a Draft that supplements Pharmacy Law 2005.

Decision 10/2007/QĐ-BTM issued in 2007. This decision provides the list of goods that FDI companies do not allow distributing directly in Vietnam. Pharmaceutical products are among them.

To supplement the decision above, a draft of new circular, which announces the implementation route of goods sales and purchasing activities of FDI companies, is being composed by Department of Planning (belong to Ministry of Industry and Trade of Viet Nam). Mr. Nguyen Tien Vy, a leader of this governmental agency, said: "**Pharmaceutical products shall be permitted to be in the list of distribution goods** which are currently in the list of non-distribution goods as per specified in the Decision No. 10/2007/QĐ-BTM. As planned, the new circular shall be in effect starting from 2014 *(according to baodautu.vn).*

Decision No 12/2007/QĐ-BYT has promulgated the principle of "Good Distribution Practice of Drug". The objective is to ensure the quality of drugs sold to end-users through several necessary requirements for the transportation, storage, distribution of drug, etc.

Joint Circular No.36/2013/TTLT-BYT-BTC issued on Nov 11th 2013 (as replaced for Joint Circular No.01/2012/TTLT-BYT-BTC) provides regulations on drug bidding in medical institutions) and **Circular No. 37/2013/TT-BYT issued on Nov 11th 2013 of the Ministry of Health** (guidelines on making bidding documents in the medical institutions as replaced for Circular No.11/2012/TT-BYT). *(see details here)*

Law No 43/2013/QH13 of the National Assembly: This Bidding Law was passed by Legislature XIII of the National Assembly on Nov 26th 2013 and will be valid on July 1st 2014 *(according to baodientu.chinhphu.vn).* Especially, Article 50, Section 3, Chapter V of this Law provides that: **"For drugs produced domestically, and be certificated by Ministry of Health on medical treatment, price of drugs and ability of provision, tenderers are not permitted to offer the similar imported drugs in bidding dossiers"**. This law is to minimize adverse effects caused by cheap drugs from Chinese and Indian tenderers.

Circular No.23/2013/TT-BYT issued on August 13th 2013. This Circular provides regulations for processing drugs, records of drug registration, order and procedures for registration, suspension and withdrawal of the drug registration process. For domestic drug processing establishments, they must possess a drug trading eligibility certificate and a certificate of satisfaction of "Good manufacture practices (GMP)" standards and are able to produce similar dosage with the processed drugs.

Circular No.05/2014/TT-BYT issued by the Ministry of Health on Feb 14th 2014. This circular provides regulations for the use of herbal raw materials and herbal drugs in healthcare institutions. That is to say, only quality drugs are to be put in use. With this circular, we expected that there will be better examination of herbal drug and some major companies specializing in traditional medicines namely Traphaco, OPC and BVpharma will be greatly benefited.

Business Income Tax Law amendments, effective from Jan 1st 2014, raised the limit of advertising cost from 10% to 15% thereby facilitating domestic pharmaceutical companies to fairly compete with foreign pharmaceutical companies and maintain a stable proportion of ETC in their revenue structure especially companies with high quality drug segments namely Imexpharm, Stada, Bidiphar, Pymepharco…

Decree 181/2013/ND-CP provides advertising regulations on drugs, cosmetics, foods, food additives, medical equipment, milk and nutritional products for children and medical services... In particular, only drugs which are in the list of 225 non-prescription drugs issued by the Ministry of Health and still have valid registration numbers are eligible for being advertised in books, newspapers, magazines, leaflets, business website... **There are also absolute prohibitions against advertising of prescription drugs,** vaccines, and biological medical products for disease prevention…*(see details here)*

B*. THE VALUE CHAIN OF VIETNAM'S PHARMACEUTICAL INDUSTRY

B* B*.1 THE VALUE CHAIN OF VIETNAM'S PHARMACEUTICAL INDUSTRY

The value chain of Vietnam's pharmaceutical industry is divided into 3 main groups:

- **Manufacturing group:** This group includes suppliers of raw pharmaceutical materials, domestic and FDI pharmaceutical companies.
- **Distributing group:** This group involves wholesale distributors, domestic and foreign distributors and wholesale markets.
- **Retailing group**: This group consists of hospitals, pharmacies and private clinics, etc. It directly distributes drugs to end users in the entire value chain.

The value chain of Vietnam's pharmaceutical industry

Source: FPTS

B* B*.2 SUPPLIERS OF RAW MATERIALS

Vietnam's pharmacochemistry is not yet fully developed. Most of raw pharmaceutical materials thus need to be imported from abroad.

According to the statistics from General Department of Vietnam Customs, Ministry of Health and Drug Administration, 90% of raw pharmaceutical materials are foreign imports. China and India are two largest source of imported medicinal raw materials that achieved 51.4% and 18.3% of the total import value in 2013 respectively.

Herbal raw materials: according to Drug Administration and Ministry of Health, up to 90% of herbal raw materials in Vietnam are imported from China given the fact that they are in short supply due to our climate constraints making herb planting impossible in Vietnam. The remaining 10% are popular herbs known as artichoke, Polyscias fruticosa, Licorice, Leonurus japonicus, and Phyllanthus urinaria, to name just a few.

These raw pharmaceutical materials are brought to pharmaceutical companies via the two following ways.

- Direct access: Suppliers usually work directly and deal with the local companies through their representatives in Vietnam. In other hand, local manufacturers may also order directly from overseas and import to Viet Nam.
- Indirect access: Through intermediary companies that specializing in supplying raw pharmaceutical materials.

Statistic about raw material imported in Viet Nam by country in 2013

Nation	Medicinal materials	%
China	142,780,525	51.4%
India	50,806,757	18.3%
Austria	19,356,558	7.0%
Spain	14,202,821	5.1%
Thailand	12,019,388	4.3%
Germany	8,893,851	3.2%
French	6,622,173	2.4%
Italia	6,337,115	2.3%
Switzerland	4,316,946	1.6%
South Korea	4,272,509	1.5%
Singapore	3,629,746	1.3%
England	3,376,554	1.2%
Japan	944,269	0.3%

Source: General Department of Vietnam Customs, FPTS

Classification of raw pharmaceutical materials:

The criteria are as follows: purity, pharmacological effects, production technology and the manufacturers' reputation. Then raw materials can be classified into two main groups including:

High quality raw materials: These materials are produced by prestigious manufacturers with unrivalled experience and state-of-the-art technology that can ensure high purity, health friendliness and certificates of approval from many governmental agencies like USFDA (US) or EMA (Europe) for finished products. Currently, CEP is a popular certificate for quality manufacturing. (Pharmaceutical products are not eligible for European market without this certificate).

(More details about "big players" in high quality raw pharmaceutical materials' segment)

Low-priced raw materials: Most of them are produced by Chinese and Indian manufacturers at far lower cost compared to high quality raw materials. However, these materials usually suffer from low purity and large amounts of residue chemicals due to low technology and financial constraints on further investments in facilities and equipment, etc.

(More details about "big players" in high quality raw pharmaceutical materials' segment)

Input prices, as typical of pharmaceutical industry, usually account for between 50% and 80% of COGS. Therefore, the difference in input prices tremendously affects gross profit margins of each company. That is to say:

The dependence of gross profit in input raw materials

Assume revenue	1,000	VND bn	Costs also include other items such as: **Packaging costs** (in some cases higher than the cost of raw materials), **depreciation expenses,** transportation ...				
Average gross profit margin	45%						
Cost of goods	550	VND bn					
Raw materials take up	60%	of COGS					
Raw materials' difference	-30%	-20%	-10%	0%	10%	20%	30%
Cost of goods	451	484	517	550	583	616	649
Gross profit margin	55%	52%	48%	45%	42%	38%	35%
Raw materials take up	80%	of COGS					
Raw materials' difference	-30%	-20%	-10%	0%	10%	20%	30%
Cost of goods	418	462	506	550	594	638	682
Gross profit margin	58%	54%	49%	45%	41%	36%	32%

Source: FPTS

(See more details about differences in raw material sources)

Comment

Raw pharmaceutical materials market in Viet Nam is witnessing fierce competition from foreign suppliers (with the 3 main groups: Europe, India, and China).

In addition, the pharmaceutical manufacturing companies are also racing in search of new sources of raw materials in order to balance quality with cost of production in accordance with the development orientation and certain customer segments of each company..

In long-term, I think suppliers of low quality materials will gradually be eliminated and replaced by those with high quality materials with FDA or EMA recognition.

B* B*.3 PHARMACEUTICAL MANUFACTURERS

Pharmaceutical companies in Vietnam are still considered young compared to the world's industry and they were not fully developed until 1990. Given that fact, long-term effects from the war and subsidy period still exist. For instance, there is always at least one state-owned (or previously state-owned) drug company that is the manufacturer cum distributor.

The entire country has approximately 178 drug manufacturers (about 100 pharmaceutical companies, 80 traditional drug manufacturers and above 300 drug-manufacturing units). Most of them focus on popular drug lines rather than specialty drugs that require sophisticated technology. As a result, overlapping production among domestic companies occurs only within a small market segment. On the other hand, valuable specialty drug market is dominated by foreign companies.

In Vietnam, drug manufacturers can be classified into smaller groups according to criteria below:

Classification by ownership:

- **Companies with foreign owned capital (FDI).** They are Sanofi Aventis Vietnam, Euvipharm, United Pharma (The Philippines), OPV, Thai Nakorn Patana, etc.
- **Domestic pharmaceutical companies.** Most of them are state-owned companies with SCIC or Vinapharm being their major shareholders. They are DHG pharma, Imexpharm, Domesco, Traphaco, etc. or some unlisted companies like Pymepharco, Bidiphar, Mekophar, etc.

Classification by product segments:

- **High-quality products:** Companies specializing in such products include some FDI companies like Sanofi Aventis, Euvipharm, United Pharma, Thai Nakorn, Patana, etc. or listed companies like Imexpharm, Domesco and unlisted ones like Pymepharco, Stada, Bidiphar, Savipharm, etc.
- **Popular products:** Companies specializing in such products involve listed companies like DHG pharma, Traphaco, Pharimexco and the remaining domestic drug companies.

Classification by sales strategies:

- **Rapid growth as a result of network and marketing investments:** DHG pharma and Traphaco are holding the lead as they specialize in one major product line which is cheap, popular, easily produced, mainly sold in commercial channels and offers fast product rotation, etc. These companies also adopt a marketing strategy aiming at customers of all types on a large scale with heavy investments.
- **Sustainable growth as a result of substantial investments in drug quality:** Some FDI companies like Sanofi Aventis, United Pharma and domestic companies like Imexpharm (listed), Domesco (listed), Pymepharco, Stada, Bidiphar, Mekophar, etc. are taking the lead.
- **Others:** These companies have a little prospect of growth due to multiple problems like: development strategies, diffuse product lines, lack prominent new products to boost their growth. In addition, their operation is just limited within local areas, which is another drawback.

Noticeable drug manufacturing companies:

- **DHG Pharma:** the largest pharmaceutical manufacturer in Vietnam.
- **Imexpharm:** a high-quality pharmaceutical manufacturer specializing in injectable antibiotics.
- **Domesco:** a company with its strength in manufacturing cures for cardiovascular, diabetes and obesity, etc.
- **Traphaco:** the largest herbal drug manufacturer in Vietnam.
- **Pymepharco:** a pharmaceutical manufacturer featuring high-quality products (unlisted)
- **Bidiphar 1:** a pharmaceutical company with cancer production line. (unlisted)

For further information of other manufacturing companies

- *Listed domestic pharmaceutical manufacturers*
- *Unlisted domestic pharmaceutical manufacturers*
- *FDI pharmaceutical manufacturers*

Comment	Vietnam's pharmaceutical industry is at the crossroads and must make a crucial decision on its development orientation which is whether to promote development **IN WIDTH** or **IN DEPTH** and which of them will enable business to make it far to more sustainable development. DHG and TRA did and are now appealing to investors with their impressive growth figures but have not yet to draw the attention of any foreign pharmaceutical corporations for the following reason. After rapid growth within a short period, it comes to the moment when the market is saturated with abundant common product lines that can be easily produced and particularly prone to competition. In that case, will DHG and TRA be able to achieve any major breakthroughs that need to take much brain to work out?; or is there any chance they

	turn to manufacturing specialty pharmaceutical product lines and are finally competent and experienced in such product lines? I, for that reason, contend that development **in depth** strategy will be an optimal choice considering the fact that manufacturers can accordingly lay a firm foundation and share a mainstream development orientation with other largest drug manufacturer in the world. For example, DMC had CFR Pharmaceutical S.A (Chile) as a major shareholder while many foreign drug corporations did and are offering IMP a proposal to acquire a large number of its shares and become its controlling shareholders (the only one drawback is room is limited to 49% for foreign investors) because they can predict a strong possibility that these two companies can be turned into their drug manufacturing bases in Vietnam at lower cost. Apart from the two companies above, other unlisted manufacturers like Pymepharco, Bidiphar, Euvipharm, Savipharm has also attract investment capitals from foreign pharmaceutical corporations which are their strategic shareholders.

B*	B*.4	OUTSOURCED PROCESSING COMPANIES – FRANCHISED PRODUCTION

OUTSOURCING: According to the definition of Ministry of Health of Vietnam, outsourcing a processing company involves having it undertake one, a few or the entire drug manufacturing procedures (including receiving raw materials, processing, packaging and labeling).

This type of manufacturing is relatively popular in Vietnam and is usually happens between mall-scale and large-scale drug manufacturers. Revenue coming from this type of manufacturing is often recorded in their financial statements in the form of service revenue, other revenue, etc. and often takes up a small proportion in the revenue structure. Quality in drug processing practices often fluctuates wildly and heavily depends on the ordering party.

FRANCHISED PRODUCTION: This is an advanced form of outsourcing with franchisers being large foreign drug corporations that aim to manufacture their own drugs in Vietnam at lower cost than imported drugs. Such drug products are very affordable in Vietnam and their quality is still as reliable as patent drugs.

Meanwhile, franchisees have to satisfy every requirement on factories, manufacturing qualification and storage, etc. Franchisers, in return, will transfer their technological know-how to franchisees (under the conditions of the confidential contracts). Prices of such drug products will be 30% lower than those of patent drugs. The most significant difference, however, between outsourcing a processing company and franchising is drug quality. Some companies with their strength in franchised production in Vietnam are Imexpharm, Pymerpharco, Savipharm, Bidiphar, OPV, etc.

Profit margin of outsourcing ranges from 1% to 10% depending on its complexity. Profit margin of franchised production ranges from 20 to 30%.

Comment	From my perspective, franchised production is an optimal approach for Vietnam's pharmaceutical industry because it enables domestic companies to keep updated on technological know-how and make full use of it when it comes to manufacturing their own products. This can save a great deal of time needed for initial experimentation. On the other hand, speaking of outsourcing, there is a high risk that foreign companies can manage to bend the rules regarding limitation on imported drugs offered by foreign tenderers. This can be done by outsourcing a processing company or establishing a domestic company

	that handles the final processing stage for the purpose of legalize the drug's origin. Up to now, Ministry of Health has not got such a regulation for this specific case.

B* B*.5 PHARMACEUTICAL DISTRIBUTING SYSTEM

Unlike the world pharmaceutical market where manufacturing and distributing companies are independent units focusing on a certain area of specialization, drug distributing in Vietnam is typical with complex structure and participation of many counterparts. They are:

1. Professional drug distributing companies
    a. State-owned distributing companies *(see more details)*
    b. Private distributing companies *(see more details)*
    c. Foreign distributing companies *(see more details)*
2. Manufacturing cum distributing companies
3. Wholesale markets *(see more details)*
4. Pubic and private hospitals
5. Drugstores *(see more details)*
6. Private clinics

To the best of my knowledge, the three largest wholesale distributers in Vietnam known as Zuellig Pharma (Switzerland), Diethelm Vietnam (Singapore), Mega Products (Thailand) are holding up to 40% market share. The remaining market share is acquired by more than 304 foreign distributors in Vietnam together with about 897 domestic distributors. *(see more details)*

However, reality shows that it is wholesale markets in HCMC and Hanoi that are dominating the drug-distributing network in Vietnam. Such network model is very typical and exclusive in Vietnam. *(see more details)*

In order to recap drug distributing procedures in Vietnam, I use the matrix model below with some key points as follows:

Drugs manufactured in Vietnam (green arrows). Such drugs are distributed to patients via the 4 following ways:

- **Manufactured drugs** → Bidding → Hospitals → Patients
- **Manufactured drugs** → Drugstores/clinics → Patients
- **Manufactured drugs** → Domestic/Foreign wholesale distributors → (Wholesale markets) → Drugstores/clinics → Patients
- **Manufactured drugs** → Wholesale markets → Drugstores/clinics → Patients

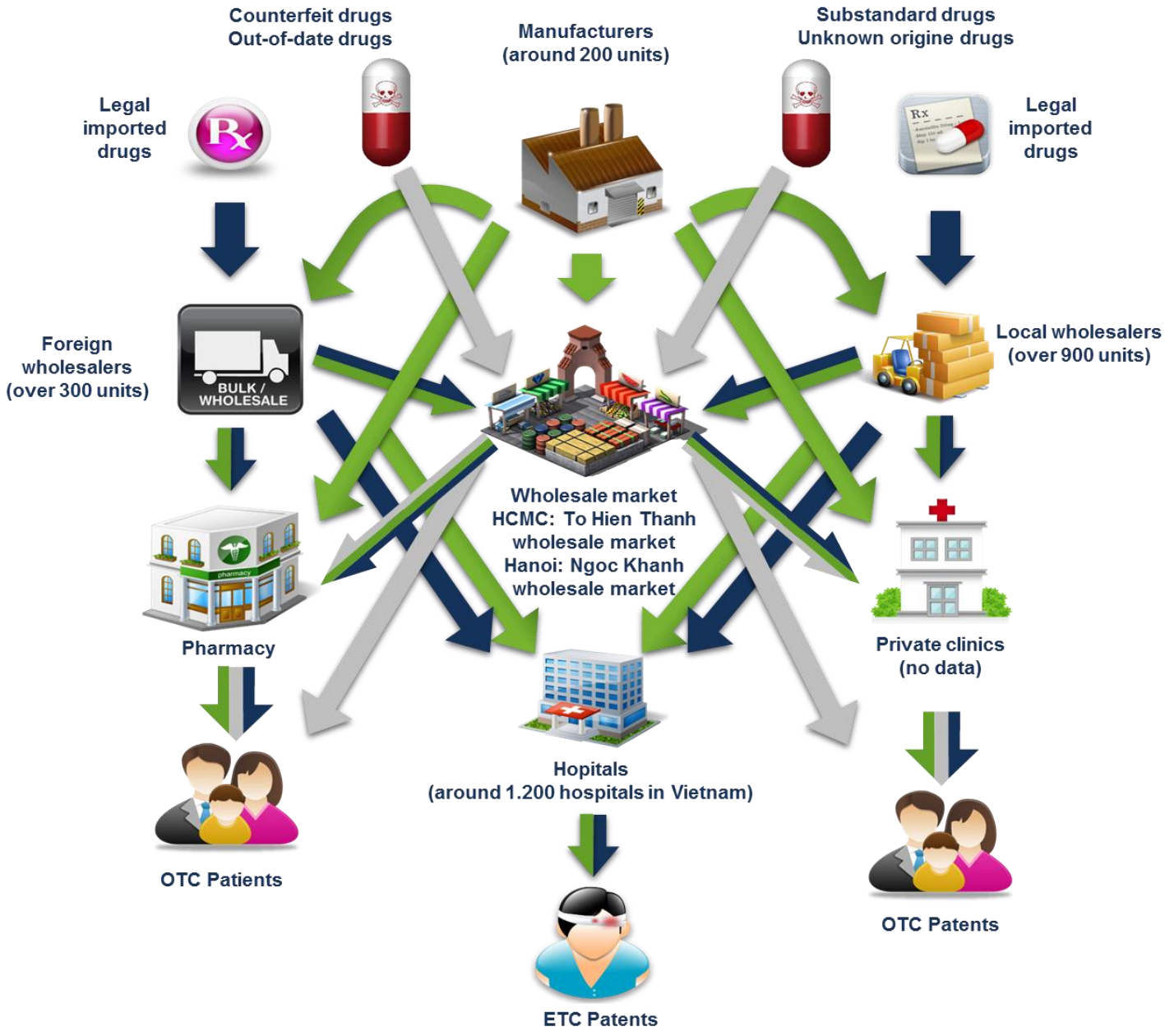
Drugs for quota imports (blue arrows): Such drugs are distributed via the 3 following ways:

- **Imported drugs** → Foreign/domestic distributors or importers → Bidding → Hospitals → Patients
- **Imported drugs** → Foreign/domestic distributors or importers → Drugstores/clinics → Patients.

- **Imported drugs** → Foreign/domestic distributors or importers → Wholesale markets → Drugstores/clinics → Patients.

Poor quality, counterfeit and illegal drugs (grey arrows) are primarily bought by wholesale markets then distributed to drugstores/clinics or directly to any customers in need.

Matrix model of drug distributing system in Vietnam



Source: FPTS

Comment	In general, medicinal products in Vietnam have to go through many stage of distribution before they reach their end users. Therefore, the prices of drugs charged on patients are supposed to be much greater than the actual self-cost. Imported drugs are not kept under strict control by our pricing administrating agency as some dominating companies like Zuellig Pharma, DKSH, Mega Products (with more than 40% of the

country's market share) are joining hands with their mother companies overseas to manipulate domestic drug price.

Problems with counterfeit and poor quality drugs are believed to persist with the assistance of wholesale markets in HCMC and Hanoi. However, such wholesale markets will not cease to exist unless they are taken over by a more effective intermediary channel.

B* B*.5.1 ETHICAL CHANNEL (ETC)

This is a pivotal channel favored by every drug manufacturers and distributers. The reasons are as follows:

- It ensures the highest consumption of all channels.
- Patients are utterly ignorant about prices and types of ETC drugs and they have to totally depend on their doctors.
- This is the most effective channel for advertising once the quality can win the trust of doctors.
- For those large national hospitals in major cities like Hanoi and HCMC, patients are in need of an enormous number of high-price ETC drugs in the hope that they can cure their fatal diseases like cancer, polytrauma, cardiovascular and mental illness, to name just a few.

Statistics of hospitals and health institutions during 2003 - 2012

YEAR	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Hospital	842	856	878	903	956	974	1,002	1,030	1,040	1,030
Clinics	930	881	880	847	829	781	682	622	620	641
Rehabilitation And Sanatorium Hospital	77	53	53	51	51	40	43	44	59	62
Medical service units in wards, communes	10,448	10,516	10,613	10,672	10,851	10,917	10,979	11,028	11,047	10,757
Medical offices in companies	810	789	769	710	710	710	710	710	710	715
Others	55	54	50	49	41	38	34	33	30	34
TOTAL	**13,162**	**13,149**	**13,243**	**13,232**	**13,438**	**13,460**	**13,450**	**13,467**	**13,506**	**13,239**

Source: General Statistic Office of Viet Nam

Comment

I highly appreciate the 2 supplementing circulars in late 2013 regarding bidding to supply medicines to hospitals. With these 2 circulars, the Ministry of Health has proved itself to pay specific regard to drug quality and give priorities to domestic manufacturing companies (This can be clearly noticed in the Bidding Law valid on July 1st 2014)

In addition, I expect that centralized bidding must be organized in the near future so that drug prices will be disclosed publicly and patients can thereby buy drugs at the right price.

B* B*.5.2 PHARMACY CHANNEL

This is the most popular distributing channel in Vietnam thanks to its convenience in purchasing and the fact that the majority of Vietnamese people are accustomed to such popular pharmaceutical product lines. It is also a conventional habit in developing countries to go to drugstores in the first place. In remote areas, drugstores are almost the only choice.

According to the General Statistics, in 2012, there are approximately 42,302 pharmacists in the entire country (including advanced/intermediate/basic levels). **According to the current policy, to be an owner of a pharmacy requires a qualification of basic level in pharmacy**. That is to say there must be at least 42,302 drugstores in Vietnam (the actual figure in 2013 can be higher) serving a population of nearly 90 million. To put it another way, one single drugstore is expected to satisfy the demand from about 2,128 people.

Realizing the importance of establishing a pharmacy chain that can meet the world's standards just before the domination of foreign distributors in our market, some domestic companies have invested in pharmacy chains and try to achieve the GPP standards which has some advantages as follow:

- Quality assurance makes sure drug products all have a clear and traceable origin.
- Unified and competitive price can be offered for drug products that do not have to go through many distributing stages and can be purchased in bulk from wholesale distributors or even directly from pharmaceutical manufacturers.
- Consumers (or patients) can receive the full benefits of drugs with pharmacists being all qualified for the GPP standard, including advices and good price.
- The GPP also requires high standards for trading room and private consultation for patients (which are not currently available in several drugstores), and private drug storages with thermometer and hygrometer to control temperature and humidity.

Some noticeable pharmacy chains reaching GPP standards: *(see more details)*

- **My Chau Pharmacy chain:** 18 pharmacy branches in HCMC
- **ECO Pharmacy chain:** 10 pharmacy branches in HCMC
- **PHANO Pharmacy chain**: 14 pharmacy branches in HCMC
- Other pharmacy chains include **SPG Pharmacy** (Saigon Pharmaceutical Company – 13 pharmacy branches), **Vimedimex, IC Pharmacy** (Indochina Pharmachemi - 6 pharmacy branches in HCMC)

B* B*.5.3 PRIVATE CLINICS

According to many sources of statistics, there are more than 30,000 private clinics in the entire country with the number tending to increase over the years and they are mostly located in the two major cities namely HCMC and Hanoi. According to the Ministry of Health, there are about 250.000 doctors doing private business. Private clinics are thus an important part of drug distributing chain in Vietnam. The reasons are as follows:

- Most of the doctors working in hospitals also work overtime in their own clinics to boost their income given the fact that monthly average earning per doctor in Vietnam is only around VND3 mn.
- Facilities and quality of all state-owned hospitals are unable to satisfy huge demands from patients while private hospitals have not yet to win the trust of many patients.

C. OVERVIEW OF LISTED PHARMACEUTICAL COMPANIES

C C.1 OVERVIEW

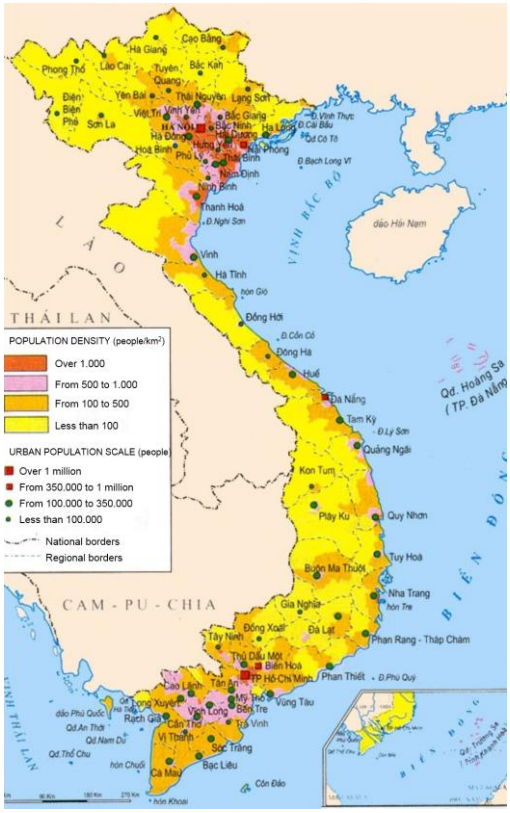
There are currently 15 pharmaceutical and medical equipment companies which are listed in 2 stock exchange markets and can be classified according to criteria as follows:

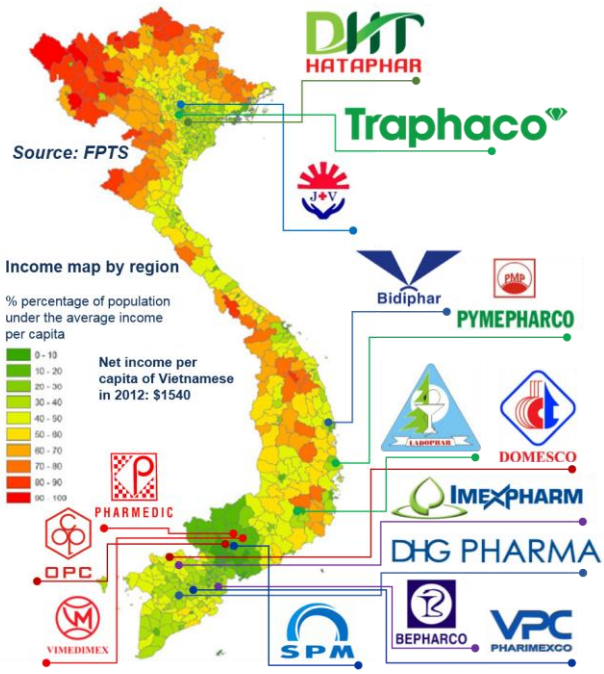
- **Listed in stock exchange markets:** there are 9 companies in HOSE market (DHG, IMP, TRA, DMC, DCL, OPC, SPM, VMD, JVC) and 6 companies in HNX market (PMC, LDP, DHT, DBT, PPP, AMV)
- **Their specialization:** 6 companies manufacturing pharmaceuticals (DHG, IMP, DMC, DCL, PMC, SPM), 3 companies manufacturing traditional medicines (TRA, OPC, PPP), 4 companies specializing in distributing (VMD, LDP, DHT, DBT) and 2 companies supplying medical equipment (JVC, AMV)

➔ **It is noticeable that** the above classification is mainly based on products' proportion and the companies' specialization. In reality, apart from VMD, JVC and AMV which do not have manufacturing operation, the remaining companies all manufacture pharmaceuticals, traditional medicines (in the form of functional foods) and distribute their products nationwide.

Their location: 5 companies in the Mekong Delta (DHG, IMP, DMC, DCL, DBT), 5 companies in HCMC (PMC, OPC, SPM, VMD, PPP), 1 company in Binh Phuoc province (AMV), 1 company in Lam Dong province (LDP) and 3 companies in Hanoi (TRA, DHT, JVC).

Map of allocation of the population's income and large pharmaceutical companies





*(*) Although **Pymepharco** and **Bidiphar** are unlisted pharmaceutical companies, we still introduce them in this map due to their high potential in investment.*

Source: FPTS

According to the distribution map above, it is obvious that most of medical service companies in general or pharmaceutical companies in particular are mainly located in the South (HCMC and some South West provinces). There are also 3 companies in Hanoi (TRA, DHT, JVC) and 3 companies in the Central (LDP, *Pymepharco, Bidiphar*)*

Their location is subject to the average income of the local people. Usually, the companies will operate in areas with high average income rate (the proportion of under-average income is lower than 40%). Additionally, the areas are the most densely populated (1,000 people/km^2 in provincial cities and above 350,000 - 1 million people/km^2 in cities and urban areas). Therefore, this region achieved the highest demands for drug inherent in such areas.

Moreover, according to the population distribution map, Vietnam coastal provinces do show an enormous potential for the pharmaceutical market, especially in provincial cities with their population density of above 100,000 people/km^2.

C C.2 COMPARISON ON BUSINESS OPERATION

The scale of market capitalization:

DHG has been holding the lead since 2007. DHG's capitalization achieves nearly VND9,300 bn, 15% higher than the total market capitalization of the other 14 companies put together which is about VND7,924 bn.

Market capitalization of listed pharmaceutical companies

Stock exchange	Sector	Code	Market price on May 27th 2014	Outstanding share	Market Cap. (VND)	Market Cap. (USD)
HOSE	Pharma	DHG	131,000	65,366,299	8,562,985,169,000	406,310,091
HOSE	Phama	TRA	75,000	24,831,821	1,862,386,575,000	88,369,470
HOSE	Pharma	DMC	41,000	26,714,074	1,095,277,034,000	51,970,441
HOSE	Pharma	IMP	52,500	16,405,810	861,305,025,000	40,868,566
HOSE	Medical equipement	JVC	15,000	56,818,530	852,277,950,000	40,440,235
HOSE	Pharma	OPC	63,000	13,040,360	821,542,680,000	38,981,859
HNX	Pharma	PMC	47,600	9,332,573	444,230,474,800	21,078,552
HOSE	Pharma	DCL	27,600	10,108,076	278,982,897,600	13,237,623
HOSE	Pharma	SPM	20,400	13,770,000	280,908,000,000	13,328,968
HNX	Distribution	LDP	52,600	3,999,959	210,397,843,400	9,983,290
HNX	Distribution	DHT	28,500	6,282,602	179,054,157,000	8,496,045
HOSE	Distribution	VMD	15,900	8,240,268	131,020,261,200	6,216,857
HNX	Distribution	DBT	27,000	3,000,000	81,000,000,000	3,843,416
HNX	Pharma	PPP	6,800	2,979,999	20,263,993,200	961,518
HNX	Medical equipement	AMV	5,400	2,115,750	11,425,050,000	542,114

Source: FPTS

Net sales and net profit

TRA and JVC are the two companies with highest revenue growth (>20%/year) during the 2009-2013 thanks to the strong demand for traditional medicines and medical equipment in this period. However, IMP, DCL, DMC are manufacturing companies with the lowest revenue growth (<8%/year).

TRA, PMC, DHT are known to achieve the highest net profit of more than 20%/year. IMP, DCL, SPM, PPP, VMD and AMV suffered from negative average growth rate between 2009 and 2013.

DHG, SPM and JVC companies are known to have the highest gross profit margin and net profit margin in average during 2009 – 2013.

Revenue and profit of listed pharmaceutical companies

Group	Code	Net revenue growth rate 2009 - 2013	Net profit growth rate 2009 - 2013	Net revenue in 2013 (VND bn)	Net profit 2013 (VND bn)	Gross profit margin 2009 - 2013	Net profit margin 2009 - 2013
Manufacturer	DHG	19.2%	13.1%	3,527	589.0	49.5%	18.0%
Manufacturer	TRA	22.5%	35.3%	1,682	149.4	36.2%	8.5%
Manufacturer	DMC	7.6%	8.9%	1,430	107.5	30.6%	7.4%
Manufacturer	IMP	6.3%	-2.0%	841	60.6	46.6%	9.4%
Manufacturer	OPC	11.0%	3.3%	564	56.3	46.3%	12.2%
Manufacturer	DCL	4.0%	-14.4%	675	30.3	26.1%	4.1%
Manufacturer	SPM	14.7%	-27.2%	441	17.5	28.8%	19.9%
Manufacturer	PMC	16.5%	23.9%	357	55.6	38.3%	14.2%
Manufacturer	PPP	19.3%	n/a	101	(5.1)	9.9%	0.9%
Distributor	LDP	20.8%	4.7%	463	18.0	15.0%	5.6%
Distributor	DHT	6.1%	20.8%	743	26.8	14.2%	2.8%
Distributor	VMD	19.9%	-3.7%	10,485	21.5	9.2%	0.3%
Distributor	DBT	5.8%	11.3%	530	11.0	16.4%	1.8%
Medical Equip	JVC	34.2%	3.3%	594	41.7	37.3%	17.6%
Medical Equip	AMV	8.3%	-34.6%	8	0.1	30.4%	-0.2%

Source: FPTS

Stocks of companies specializing in distribution have differed significantly ever since VMD's revenue rose to VND10.485 bn. Much of the revenue comes from entrusted importation carried out by foreign pharmaceutical corporations with the lowest gross profit margin (9.2%) compared with that of other listed companies in the same group.

The manufacturing group has an average gross profit margin of 38% with DHG, IMP, OPC accounting the largest proportion (>46%) as the proportion of drugs produced by this group is quite high in terms of revenue structure. In addition, the group that has distributed drugs contributing to the majority of revenue has lower gross profit margin than the industry average. This group's net profit margin stays at 12% with DHG and TRA being on the top with their net profit margin of 18% and 20%, respectively.

In terms of profit, DHG's net profit rises to the top with VND589 bn, approximately equal to the net profit of the other 14 companies combined (VND591 bn). The figure proves DHG's outstanding position in the domestic pharmaceutical industry.

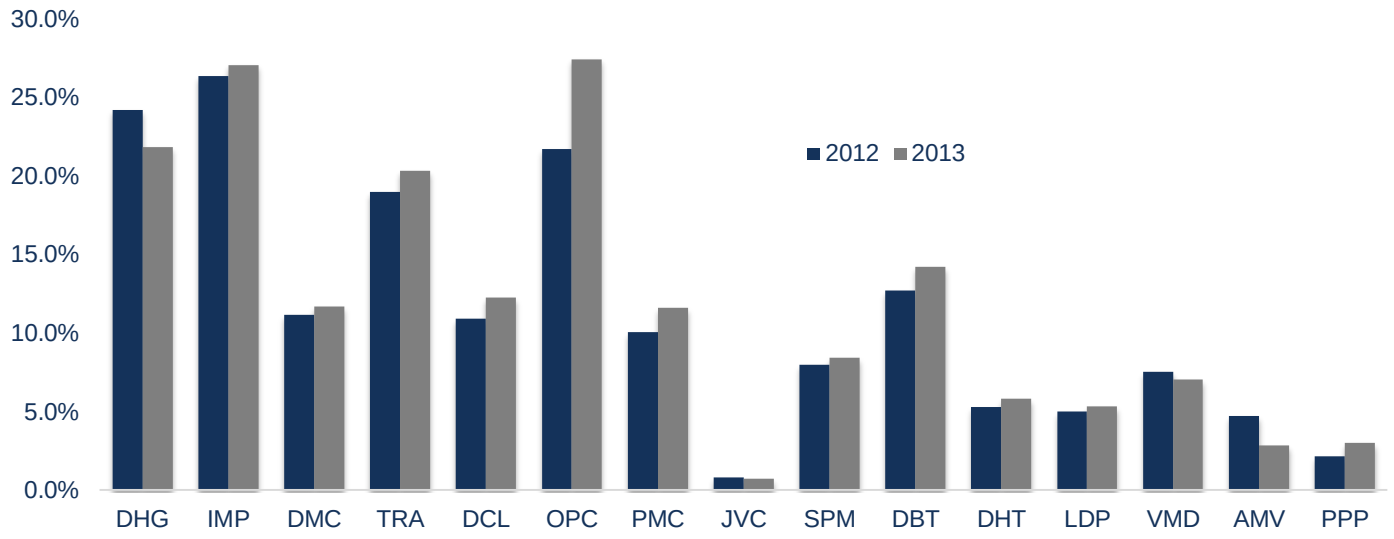
Sales expenses

For manufacturing companies, the average selling cost accounts for about 17% of net revenue each year. Companies that have selling cost making up a significant proportion are IMP, DHG, OPC and TRA (>20%). These companies are large-scale ones and developed a huge sales network with its nationwide coverage. The cost of maintaining and developing such systems thus takes up the majority throughout the year.

There is a tendency for companies specializing in traditional medicines namely TRA and OPC to increase its selling cost/revenue over the years. The main reasons are that the main products of these two companies featuring functional foods are not limited by policy on advertisement but have to face fierce competition from similar foreign and domestic products. Therefore, investments in sales and marketing are an essential key to success.

JVC is a company with the lowest proportion of selling cost/revenue among the listed companies because it specializes in bidding and supplying medical equipment to hospitals.

Percentage of Sales Expenses per Net revenue



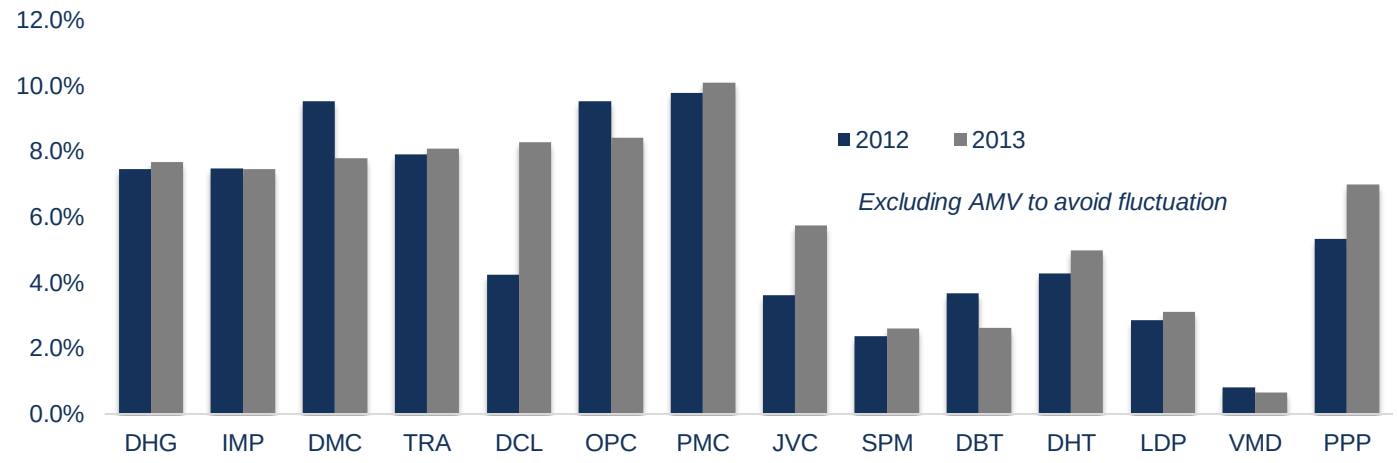
Source: FPTS

Business administration expenses

Business administration expenses of manufacturing companies constitute about 8% of net revenue. Among the largest companies in the industry, DHG, IMP, TRA, PMC are those with business administration expenses slightly increasing over the years.

Conversely, DMC and DCL are the 2 companies with substantial fluctuation in business administration expense proportion in both upward and downward trends. The trend is downward for DMC with such proportion reducing from 9.5% to 7.8% (-18%) which is the result of cutting administration cost and increasing revenue. The trend, however, is upward for DCL with such proportion dramatically increasing from 4.2% up to 8.3% (+98%) which mainly comes from provisions in the period.

Percentage of Business administration expenses per Net revenue



Source: FPTS

C C.3 COMPARISON OF TARGETS IN THE BALANCE SHEET

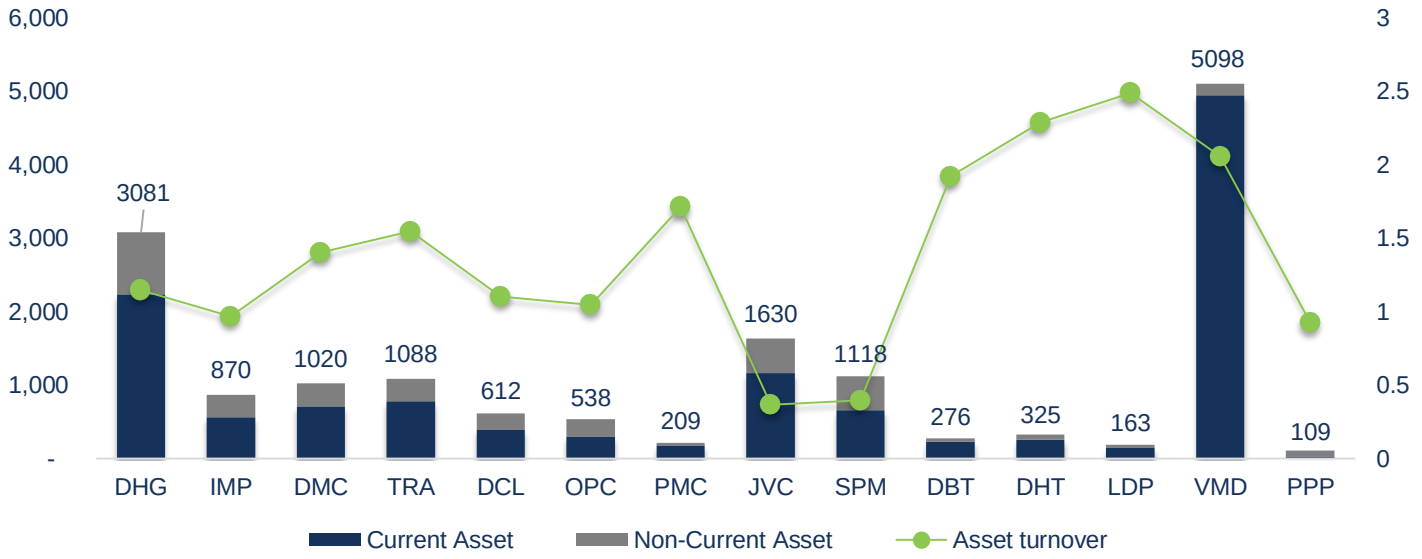
Total asset scale and total asset turnover

Regarding to asset scale, total assets of the listed pharmaceutical companies are VND11.000 bn by the end of 2013. VMD tops the list of those companies with its total assets of VND5.100 bn dong thanks to its entrusted import services with big amount of inventory and receivables.

In general, the asset structures of manufacturing companies and of those specializing in medical equipment share some marked similarities. Their short-term assets averagely account for 68% of the total assets. In contrast, distributing companies' proportion for long-term assets keeps at a rather low rate of about 17% of total revenue (VMD particularly has its long-term assets equal to 3% of total assets). This is because they do not have to make heavy investment in factories and machinery.

In terms of asset turnover, PMC is known to have the most rapid turnover of 1.7 among the manufacturing companies. For distributing companies, it is noticeable that their turnover is relatively high (>2) due particularly to their typical business. JVC specializing in supplying medical equipment has a rather low turnover (0.36). SPM has the lowest turnover (0.39) among the manufacturing companies due to the fact that a mounting amount of capital is being appropriated by Do Thanh (a familiar company) in the form of receivables.

Total asset scale and total asset turnover of listed pharmaceutical companies (billion VND)



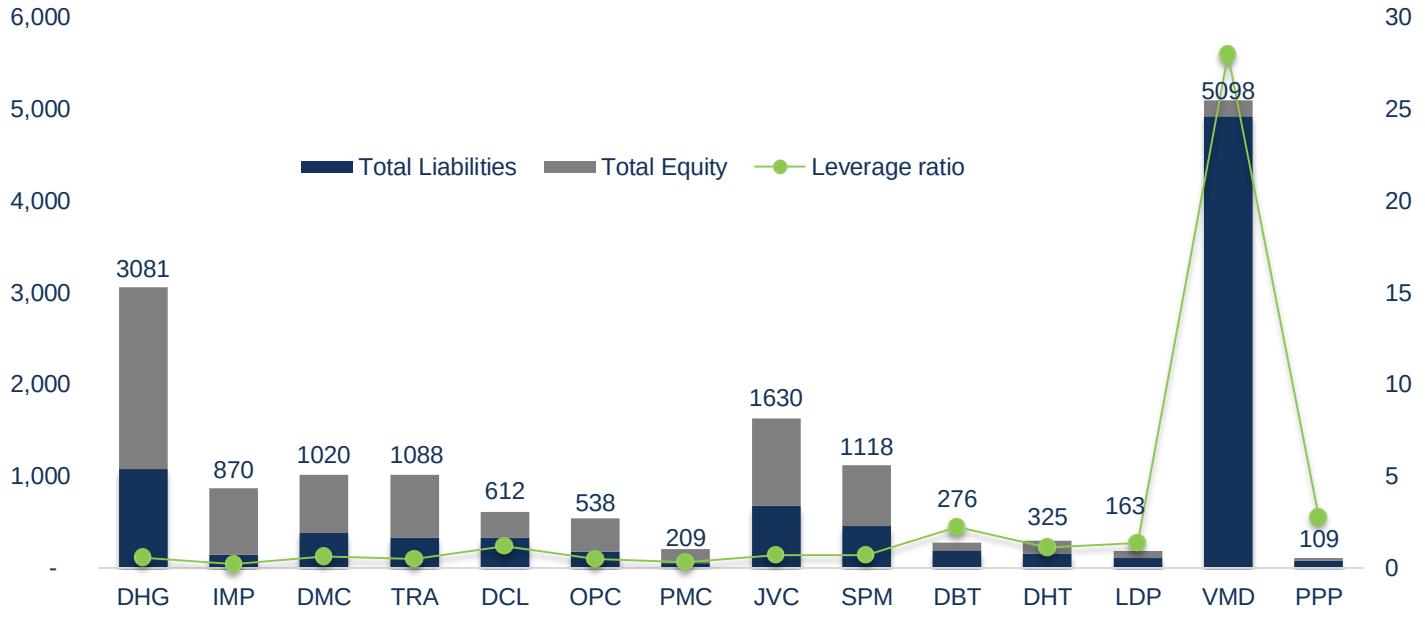
Source: FPTS

Capital structure and the liabilities/equity proportion

The manufacturing companies establish a solid capital structure with equity averagely accounting for 66% of capital structure. Especially, IMP is reported to have the highest equity proportion (83% of capital) as well as the lowest financial leverage (0.2)

The pharmaceutical distributing companies, on the other hand, have a high proportion of liabilities (70%) in their capital structure which is mainly based on loan. VMD has the highest liabilities/equity proportion (28 times higher) with liabilities constituting 97%.

Capital structure and the liabilities/equity proportion of listed pharmaceutical companies



Source: FPTS

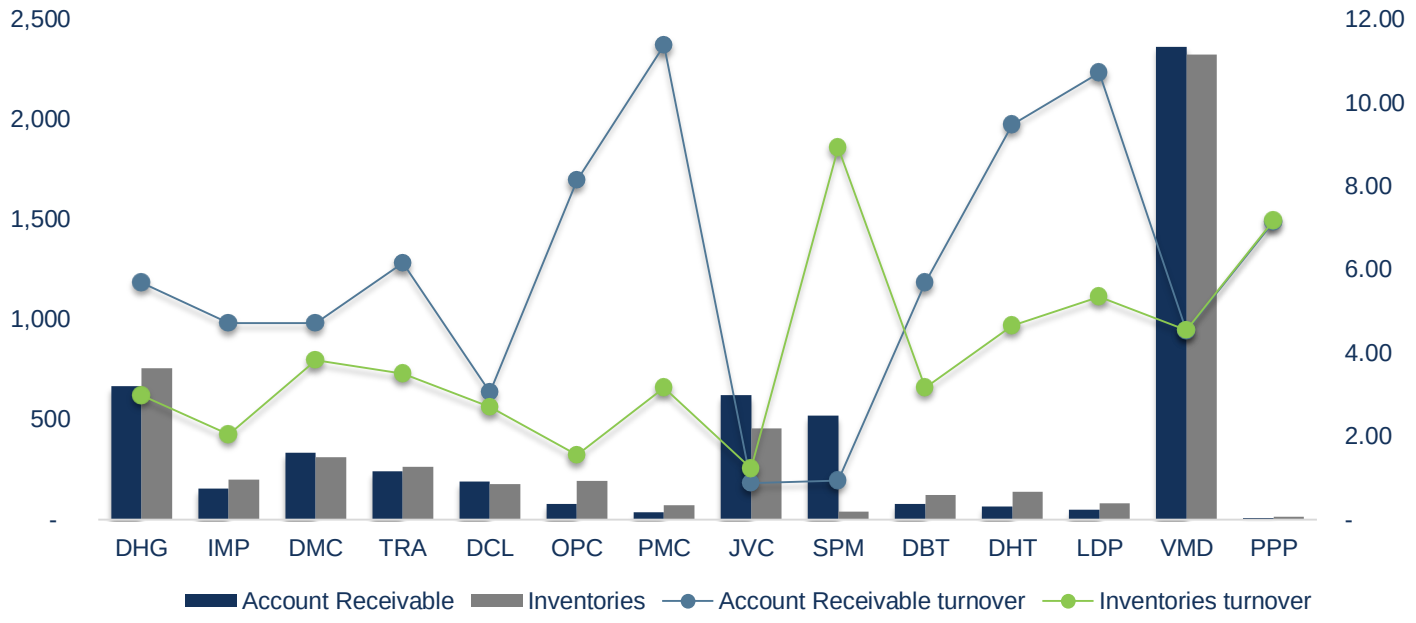
Accounts receivable and account receivable turnover

VMD and DBT are the two companies with highest proportion of inventories and accounts receivable in their capital structure of 92% and 72%, respectively. With they both being excluded from the group, the average proportion of inventories and accounts receivable is only 52% of total assets of all pharmaceutical companies.

The account receivable turnover of those listed pharmaceutical companies is 5.9 in average. Specifically, PMC and LDP have the highest turnover of 11.4 and 10.7 respectively proving themselves to successfully manage debt collection and suffer from fewer cases of appropriated capital. In contrast, JVC and SPM are the two companies with the lowest account receivable turnover of 0.87 and 0.94 respectively. For JVC, this is because of the payment time which is extended to above 12 months and subject to annual budgets of the hospitals. As for SPM, the very low turnover is attributed to the fact that its capital is appropriated by Do Thanh Ltd.

The inventory turnover of those companies is approximately 3.9 in average. The manufacturing companies usually have fewer days of inventory turnover compared to the distributing group. Remarkably, SPM has its inventory turnover of up to 8.9 per year (approx. equal to 41 days) because of Do Thanh Ltd which is its exclusive distributor. Therefore, SPM's inventories are mostly transferred to Do Thanh Ltd and recorded again in the short-term receivable list.

Account receivable & AR turnover and Inventories & Inventories turnover (billion USD)



Source: FPTS

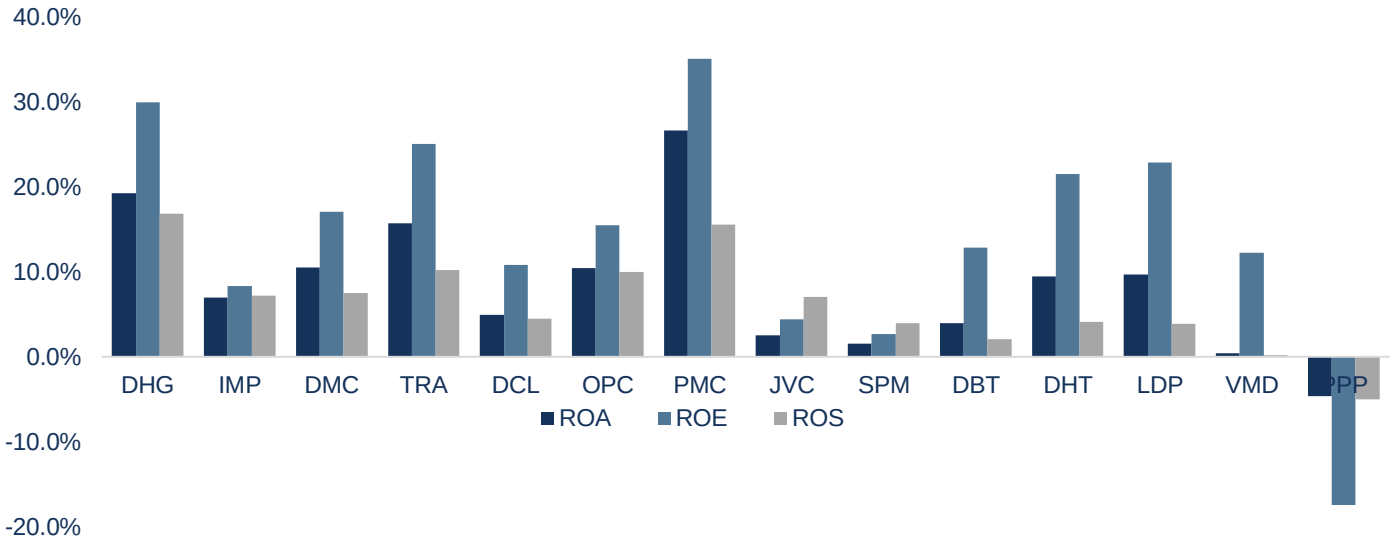
C C.4 COMPARISON OF TARGETS IN PERFORMANCE

Profitability Performance

Based on the profitability performance on equity (ROE) which can divide the pharmaceutical companies into 3 main groups as follows:

- High profitability performance (ROE > 20%): This group includes: PMC, DHG, TRA, DHT and LDP with ROE of 27% in average. Particularly, PMC has the highest ROE of up to 35% in 2013. The lowest ROE figures go to DHT and LDP with the rate being 21.5% and 22.9% respectively.
- Average profitability performance (10% < ROE < 20%): This group includes DMC, DCL, OPC, DBT, VMD with average ROE of about 14%. Highest ROE in this group belongs to DMC (17%) and lowest is for DCL (10.8%).
- Low profitability performance (ROE < 10%): This group includes the rest companies such as IMP, JVC, SPM, PPP with IMP having the highest ROE of 8.4% (lower than the average 10% of the 2010 - 2012 period) due to improved business operation. The two JVC and SPM companies have relatively low ROE (4.4 % and 2.7 % respectively) as encountering difficulties in business operation in 2013. PPP is the only listed pharmaceutical company that is reported to suffer loss in 2013.

Profitability Performance (ROA, ROE, ROS) (percentage)



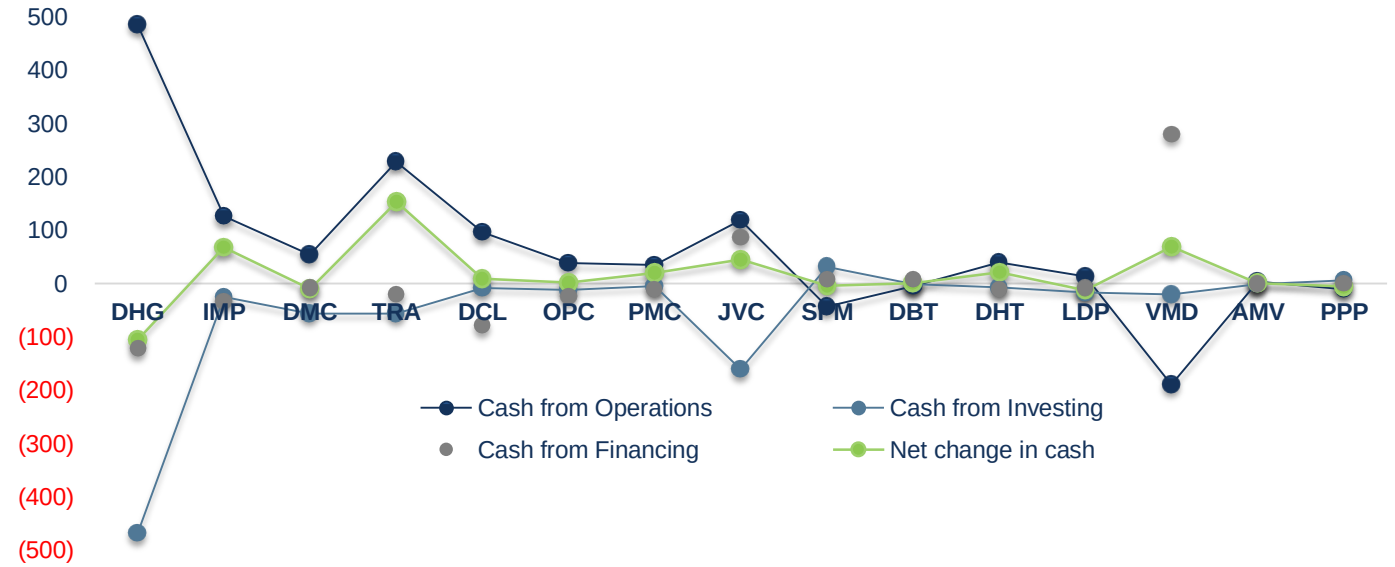
Source: FPTS

Cash flow in the period

Cash flow from business operations: Most of the companies have positive cash flow earned from their core business activities. Particularly, DHG and TRA are the two companies with the highest cash flow of VND484 bn and VND228 bn respectively. Companies with negative cash flow from operations are SPM, DBT, VMD and PPP.

Cash flow from investment activities: DHG tops the listed companies with its investment in new factories reaching up to VND468 bn in 2013. Other manufacturing companies namely IMP, DMC, TRA, DCL, PMC, and OPC still make annual investment in new machinery. Especially, JVC specializing in supplying and renting medical equipment has very high proportion of annual investment cash flow which is mainly compensated by financial activities (short-term debt). Additionally, VMD is an isolated case when it makes use of the cash flow from financial activities to make up for the lack of operating cash flow and investment cash flow.

Cash flow of pharmaceutical companies in 2013 (billion VND)



Source: FPTS

C C.5 RECOMMENDATION

No	Code	Company	Stock Exchange	Recommendation	Market price on Apr 23th 2014	Target price in 12 months DCF & PE	+/- %	Outstanding share	3 months average trade volume	Foreign-owned room	P/E		P/B	EPS		BV
											trailing	forward	trailing	trailing	2014 (F)	trailing
1	DHG	Hau Giang Pharma J.S.C	HSX	SELL	140,000	114,000	-19%	65,366,299	**21,698**	49.0%	15.47	13.66	4.60	9,047	10,250	30,415
2	IMP	Imexpharm Pharmaceutical J.S.C	HSX	BUY	56,000	73,000	30%	16,405,810	**51,900**	47.3%	15.30	9.99	1.27	3,659	5,608	44,268
3	DMC	Domesco Medical IM-EX J.S.C	HSX	ADD	42,800	49,038	15%	26,714,074	**51,815**	49.0%	7.38	8.73	1.22	5,797	4,904	35,194
4	TRA	TRAPHACO J.S.C	HSX	MONITOR	83,000	80,059	-4%	24,831,821	**6,532**	46.0%	12.13	14.51	3.02	6,842	5,718	27,509
5	DCL	Pharimexco J.S.C	HSX	MONITOR	27,000	26,612	-1%	10,108,076	**86,642**	15.1%	7.62	7.18	1.07	3,542	3,759	25,186
6	OPC	OPC Pharmaceutical J.S.C	HSX	REDUCE	67,000	61,655	-8%	13,040,360	**6,933**	15.3%	15.48	13.04	2.41	4,329	5,138	27,795
7	PMC	Pharmedic Pharmaceutical J.S.C	HNX	MONITOR	48,500	50,147	3%	9,332,573	**4,042**	12.9%	8.12	6.78	2.84	5,972	7,151	17,088
8	JVC	Japan Vietnam Medical Instrument J.S.C	HSX	n/a	15,600	n/a	n/a	56,818,530	**591,257**	49.0%	18.82	n/a	0.93	829	n/a	16,749
9	SPM	S.P.M J.S.C	HSX	MONITOR	20,000	20,334	2%	13,770,000	**7,967**	5.9%	3.04	15.30	0.43	6,576	1,307	47,049
10	DBT	Bepharco Pharmaceutical J.S.C	HSX	MONITOR	29,000	29,333	1%	3,000,000	**1,570**	1.8%	8.13	7.91	1.00	3,569	3,667	29,057
11	DHT	Hataphar Pharmaceutical J.S.C	HSX	REDUCE	29,700	27,314	-8%	6,282,602	**7,595**	0.4%	6.97	10.87	1.31	4,260	2,731	22,633
12	LDP	Ladophar Pharmaceutical J.S.C	HNX	REDUCE	49,100	45,000	-8%	3,999,959	**340**	9.3%	9.28	10.91	2.12	5,289	4,500	23,124
13	VMD	Vietnam Medical Products IM-EX J.S.C	HSX	MONITOR	15,100	16,019	6%	8,240,268	**18,937**	2.5%	5.48	5.66	0.73	2,753	2,670	20,825
14	AMV	AmviBiotech Incorporation J.S.C	HNX	n/a	5,700	n/a	n/a	2,115,750	**9,054**	17.1%	59.38	n/a	0.57	96	n/a	9,942
15	PPP	PP.Pharco J.S.C	HNX	SELL	8,700	6,829	-22%	2,979,999	**578**	0.1%	(5.11)	12.74	0.33	(1,702)	683	26,393

DHG – SELL, target price for the next 12 months is VND114,000 (-19%) *(See more details)*

We expect that in 2014 net sales will achieve VND4.083 bn; net profit will reach VND670 bn with EPS forward 2014 being VND10.241 per share. Upon our recommendation, transactions in short-term and medium term need to be proceeded with caution and investors are advised to **SELL** DHG stock as the current price just goes beyond the reasonable price for such stock. Reasons are as follows:

- Efficient exploitation from the new plant remains inconclusive. It would take more time than it was expected to fill up its capacity. Betalactam plant project is still delayed.
- Development orientation of DHG only works for short-term with its focus on popular pharmaceutical product lines or those that can be manufactured with ease.
- It is a radical challenge to transfer management responsibilities to the next generations.
- Investment in the new plant is not followed by the necessary technology upgrade minimizing the chance of manufacturing high quality drugs or co-operating with some foreign pharmaceutical corporations.

IMP – BUY, target price for the next 12 months is VND73,000 *(see more details)*

We expect that in 2014, net sales will achieve VND939 bn; net profit will reach VND89 bn with EPS forward 2014 being VND5.300 per share. Upon our recommendation, investors are advised to **BUY** IMP shares in medium and long term at the target price of VND73.000 for the following reasons.

- It has a promising development orientation with its concentration on high quality drugs and its consistency with the growing trend in medium and long term of the domestic and global pharmaceutical industry.
- Supporting policy is being amended with positive changes. Circular 36 and 37 replace the old one and the Bidding Law has also been amended.
- Under the contract for doing franchised production for CFR, the two Cephalosporin and Penicillin factories of IMP are bound to come into operation with a very promising injectable antibiotics product line.
- IMP is about to issue its 10% of stock to attract some local strategic counterparts who are believed to help IMP extend its distributing network and at the same time bring more franchised production contracts from foreign drug corporations.
- It is highly likely that IMP would be acquired by other foreign and even domestic pharmaceutical companies. Especially stock price is one of the critical criteria to have some influence on the acquisition.

DMC – ADD, target price for the next 12 months is 49,000 VND *(see more details)*

We expect that in 2014, net sales will achieve VND1.567 bn, net profit will reach VND131 bn with EPS forward 2014 being VND4.904 per share. Upon our recommendation, investors are advised to **ADD** DMC stock in medium and short term at the target price of VND49.000. The reasons are as follows:

- It is secured by tremendous support and state-of-the-art technology transfer from its largest shareholder namely CFR Pharmaceutical SA (Chile). Domesco is predicted to be the major manufacturer for CFR in the future, from 2018 to be exact, when its Non-Betalactam plant with EU – GMP standards comes into production.
- DMC is going to do franchised production of some product lines for Pharma Science (Canada) and CFR in the near the future.
- There is a strong possibility that it can become the exclusive distributor of cancer pharmaceuticals for the joint venture manufacturing plant of SCIC and CFR.
- It is more than likely that DMC and CFR will consider the possibility of merging some manufacturing units to work out their current production capacity overload problems. By the end of 2010, CFR did IPO 24.1% of its equity and thereby yielded USD390 mn for its global M&A project. From 2010 onwards, CFR has spent 1.9 bn USD on M&A in Colombia, South Africa and Vietnam in the hope to expand all over the world. CFR has recently established its Asia Pacific headquarter in Vietnam which will act as a springboard to further success in the entire ASEAN area in general and thoroughly in Asia in particular.

(See more details about management and planning quality of large companies)

C C.6 OVERVIEW OF FINANCE OF NOTICEABLE UNLISTED COMPANIES

Group	Indicator	Pymepharco	Bidiphar 1	Mekophar	HD Pharma	F.T Pharma	Danapha	Dapharco	Agimexpharm	TV Pharma
Balance Sheet	Total Asset	1,081	380	652	246	162	350	839	145	315
	Current Asset	847	269	491	216	102	225	804	100	262
	Account Receivable	397	177	163	122	43	112	582	50	126
	Account Payable	78	86	41	81	5	20	491	14	43
	Inventories	336	39	242	62	41	64	85	36	116
	Non-current Asset	234	111	161	30	60	126	35	45	53
	in which: Fixed assets	215	59	125	30	53	115	34	43	52
	Total Liabilities	383	132	180	146	55	187	761	78	131
	in which: short-term debt	153	15	-	16	33	71	231	48	53
	Total Equity	698	249	471	100	107	164	78	68	176
	in which: Share capital	178	105	106	30	47	62	28	26	101
Income statement	Net revenue	1,188	471	1,242	742	244	316	2,031	253	418
	COGS	573	294	987	615	154	171	1,931	161	252
	Gross profit	615	177	255	127	91	146	100	93	166
	Gross profit margin	52%	38%	21%	17%	37%	46%	5%	37%	40%
	Financial income	0.7	5.2	8.9	0.6	0.2	1.5	5.7	0.5	2.3
	Financial expenses	30.1	1.2	1.8	3.7	2.5	11.1	30.8	5.4	9.3
	in which: interest expense	23.6	1.1	-	3.5	2.2	11.1	17.3	5.2	5.5
	Sales expenses	358	86	65	33	41	63	35	57	84
	Administration expenses	43	16	85	54	12	33	26	15	25
	Earning before tax	187	79	113	36	36	40	17	15	51
	Profit after tax	148	57	74	28	24	30	13	11	36
	EPS	15,738	5,473	7,246	9,321	5,063	4,874	4,510	4,179	4,878
	ROA	14%	15%	11%	11%	15%	9%	2%	8%	11%
	ROE	**21%**	**23%**	**16%**	**28%**	**22%**	**18%**	**16%**	**16%**	**21%**
Cash flow	Cash flow from operations	197	26	70	45	11	33	24	0.1	26
	Cash flow from investing	(33)	(18)	(22)	(6)	(7)	(9)	(1)	0.0	(18)
	Cash flow from financing	(84)	(9)	(23)	(28)	(6)	(14)	28	1.6	(20)
	Net cash flow	80	(1)	25	11	(3)	11	52	1.7	(11)

Among the unlisted companies above, the 4 companies namely Pymepharco, Bidiphar 1, Mekophar and HD Pharma are noticeable with some following highlights:

- **Pymepharco** with 49% of its equity belonging to the leading pharmaceutical corporation STADA Arzneimittel AG (Germany) is known to have a product line meeting the PIC/S – GMP standard. Besides, EPS and ROE figures are very appealing to investors looking for medium and long term investments. *(more details)*
- **Mekophar** used to be a listed domestic company and has no longer been listed since 2012. It was the very first company in Vietnam to set up a stem cell bank namely Mekostem specializing in collecting, analyzing, processing and preserving cord blood stem cells service. It is also known to be the pharmaceutical company with the highest book value in the market (VND61.700 per share) *(see more details)*
- **Bidiphar 1** is the very first company in Vietnam to experiment and manufacture pharmaceutical injection drug for cancer with its advanced technology and the process being under strict control of Fresenius Kabi Pharmaceutical Corporation (Germany) *(see more details)*
- **HD Pharma** is a company with the highest ROE in the pharmaceutical industry. *(see more details)*

APPENDIX

1	LISTED PHARMACEUTICAL COMPANIES	*Turn back to RCD*

Turn back

DHG Pharma (DHG – HOSE) – **Pharmaceuticals**

Strengths: large scale production (9 bn products/year), substantial financial resource, distribution network covering the whole country, viable in-depth marketing strategies. *(see valuation report)*

Weaknesses: Still not satisfy the strict requirements of drug quality and origins of raw materials according to international standards namely PIC/S – GMP, EU – GMP, etc. Still depend on imported raw materials.

Founded in 1974

Opportunities: Segment for popular OTC drugs has every potential to prosper in the next 5 years with steadily growing drug spent in Vietnam over the years and lightly suffers from the Circular 01 (replaced by Circular 36) as OTC channel makes up 80% of sales.

Threats: DHG are facing problems regarding 1) requirements for improving product quality standards in accordance with the dominant trend of the world and 2) the pressure from transferring management responsibilities to the next generation.

Key leaders: Mrs. Pham Thi Viet Nga (1951 - Bachelor of Science in Pharmacy - Doctor of Philosophy in Economics – Chairman of the Board). She established and has been managing the business ever since its first days. It is very likely that Mr. Doan Dinh Duy Khuong (1974 – MBA – Deputy General Director of Sales and Marketing) will be the successor to the post currently hold by Mrs. Pham Thi Viet Nga after her 2014 – 2018 tenure ends.

Comment	DHG is the leading company in the industry in terms of its sales volume and operation network in Vietnam. However, its market segment orientation towards popular low-cost products and development strategies in width are no longer suitable for such a leading company like DHG, not to mention the fact that high quality drugs are more and more desirable. Therefore, the company is on its way to devise a new sales marketing plan when Mrs. Pham Thi Viet Nga retires in 2018. Equally important are the responsibilities being transferred from Mrs. Pham Thi Viet Nga to the next generation.

IMEXPHARM PHARMACEUTICAL JSC (IMP - HOSE) – **Pharmaceuticals** *Turn back to RCD*

Strengths: high quality drugs with strict testing processes, modern factories of European standard, good reputation for quality as recognized by provincial or national hospitals. About to meet PIC/S – GMP international standard. Manufacturing franchisee for several pharmaceutical corporations namely: Novartis (Switzerland), Sandoz (Spain), Pharma Science (Canada), CFR Pharmaceutical SA (Chile) *(see valuation report)*

Founded in 1983

Weaknesses: Profit after tax for the past 4 years has not achieved any growth due to depreciation expenses when making huge investments in antibiotic injection factories. Adverse influence from the Circular 01 of Ministry of Health reduces its ETC proportion from 65% to 30%.

Opportunities: People are more and more aware of the effects of drug quality on their health making demands for high quality drugs (equivalent to European drugs) insatiable and simultaneously boosting their fair price. The strategy to promote the OTC channel is projected to accelerate revenue and profit growth in the coming years. The policy of management agencies is

being amended and seems to be very favorable to IMP when it focuses on drug quality and supporting domestic drug companies.

Threats: The Circular 01 (as replaced by the Circular 36 but root causes still remain) and current regulations of the Bidding Law are posing a major obstacle to the company at least until the end of 2014. There's also a high risk of being acquired by foreign pharmaceutical corporations and domestic associated groups so as to take advantage of the two modern antibiotic injection factories with their comprehensive business and asset system.

Comment	Among listed companies, IMP adopts a different operation philosophy from others when it accepts a slow growth in return for drug quality. Its factories are built and are all qualified for the European standards. Its promising orientation also enables IMP to become the leading company in the industry. I suppose that after the meticulous preparation, IMP is about to enter the phase of rapid growth with OTC's proportion being expected to surge to 70% of revenue and reliance on ETC channel, which is easily manipulated by the policy of Ministry of Health, being gradually minimized. Additionally, IMP has become an area of interest for foreign drug corporations who want to have their drugs manufactured in Vietnam. Just like Domesco, it is very likely that Imexpharm will probably acquired and merged with foreign pharmaceutical corporations given the fact that the provision on limit on foreign ownership of its shares to 49 percent is to be waived soon.

DOMESCO MEDICAL IMPORT-EXPORT JOINT-STOCK CORP. (DMC – HOSE)

Pharmaceuticals

Turn back to RCD

Founded in 1985

Strengths: Widespread distribution network. Competitive price. Price ranges over different quality segments. Large-scale production. Leading manufacturer in low-cost drug lines. Exporting to developing countries is going smoothly especially the Africa. *(see update report)*

Weaknesses: Manufacturing technology just reaches the GMP – WHO standard and is still far from PIC/S or EU –GMP.

Opportunities: It is secured by tremendous support from its largest shareholder namely CFR Pharmaceutical SA (Chile) (46% of capital share). There's also a good chance that technology and formulas for specialty drugs are transferred from CFR. There's every likelihood that factories will be upgraded to the PIC/S-GMP standard.

Threats: The relationship among Domesco, SCIC and CFR is not very clear. DMC is likely to become an FDI company specializing in manufacturing and distributing CFR drugs in Vietnam in particular and in Asian market in general.

Key leaders: Mr. Huynh Trung Chanh (1947 - Bachelor of Science in Pharmacy – Vice Chairman of the Board – CEO). He started as a director of Pharmacy at Dong Thap Hospital 10 years from 1975. The current strategy adopted by Domesco reflects the impacts of Mr. Chanh as well as helpful assistance of Mr. Nguyen Van Hoa (1967 - Vice CEO) who is in charge of investor relations and trading operations of Domesco.

Comment	In my evaluation, Domesco is one of the most dynamic companies in Vietnam as it is involved in manufacturing and supplying a variety of products ranging from popular product lines such as antibiotics, painkillers…to specialty drugs like cures for heart diseases, diabetes… However, the majority of domestic companies tend to rely on the competitive pricing strategy and Domesco is no exception. My expectation is that after CFR re-establish control of the business operation, Domesco will make some remarkable improvements. Also, the state shareholder SCIC has to withdraw 35% of equity during the 2014 – 2015 period.

Cuu Long Pharmaceutical Joint Stock Corp (Pharimexco) (DCL – HOSE) – Pharmaceuticals

Strengths: almost exclusively supply capsules to other pharmaceutical companies in the domestic market at competitive prices with its flexible supplying capability in terms of quantity and quality.

Weaknesses: investment in branding is not yet maximized and still far from distinguishing itself in the market. It is now facing fierce competition in pricing with other local companies. Comprehensive restructuring is in progress. Capsule supplying contracts are still inferior to those from Thai and Indian counterparts.

Founded in 1976

Opportunities: It has an enormous potential to develop the capsule product line and expand over local and provincial areas. With valuable help from SCIC, successful restructuring will bring about a revival and get Cuu Long back on track to become a strong company in the industry.

Threats: Restructuring brings along problems to cope with especially the receivables remaining unsettled ever since the tenure of predecessors. In addition, some major foreign shareholders have disinvested recently.

Key leaders: Mr. Luong Van Hoa (1957 – Member of BOD – CEO) has taken control of DCL since 1986 and has made great impact on its business operation. However, with the unexpected loss of VN31 bn in 2011, SCIC, a major shareholder, made a forceful intervention in the leadership structure of the company. DCL's plans for the future, thus, still remains inconclusive.

Comment	DCL has made an impressive recovery in 2012 with timely intervention of SCIC in the comprehensive business restructuring. However, problems have arisen in the debt collection process and the fact that major foreign shareholders are making drastic divestments shows that many difficulties still remain unsolved. DCL is also one of the pharmaceutical companies from which SCIC has to withdraw all of its equity in the 2014 - 2015 period (36.4%).

TRAPHACO JOINT STOCK COMPANY – Herbal medicines

Strengths: traditional medicines (functional food) such as Boganic, Cebraton (also known as Hoat Huyet Duong Nao in Viet Nam)… have made their brand images and won a stable place in the market. Traphaco always has 90% of raw material at its disposal. Widespread distribution. Large manufacturing capability. *(see update report [VIE])*

Weaknesses: good performance in the domestic market only. The relationship between Traphaco and its subsidiaries is complex and unclear. Its traditional medicines have not undergone any clinical trials.

Founded in 1972

Opportunities: it is a worldwide trend to favor drug products which are derived from natural materials and health friendly.

Threats: Modest technology and intellectuality investments pose a risk of being easily copied by other competitors. Harsh competition also includes some domestic companies manufacturing traditional medicines and abundant functional foods imported. Effectiveness of the new Pharmaceutical Factory plan remains obscure.

Key leaders: Mrs. Vu Thi Thuan (1956 – Master of Medicine – Chairman), has been holding the top power position – executive director since 2000. She has helped TRAPHACO to boost sales, expand its network and have successful branding. Mr. Tran Tuc Ma (1965 – Secretary of the Party – Vice president of the Board, CEO) is very likely to become the next leader of TRAPHACO.

Comment	TRAPHACO, a listed company with an ideal growth and sound finance, has become an interest to both consumers and domestic and foreign investors. However, it should be noticed that all of the

	main products of TRAPHACO like Cebraton and Boganic are basically "functional foods" which do not require a lot of intellectual investment and are totally based on available traditional remedies. To the best of my knowledge, most of other pharmaceutical companies in Vietnam manufacture products similar to those of TRAPHACO. That is the reason why there is intense domestic competition in this type of product segment, let alone competition from imported functional foods. Additionally, provisions regarding clinical trials of the Ministry of Health still need some amendments to be more detailed and specific. I, therefore, think that only after in-depth investment and serious clinical trials can TRAPHACO make itself outstanding in the market and achieve sustainable growth. Their products would be known as "real medicine", not the so-called functional foods.

OPC Pharmaceutical Joint Stock Company (OPC – HOSE) – Herbal medicines

Founded in 1985	**Strengths:** The second largest traditional medicine company in Vietnam (after Traphaco). The products win the trust of consumers. Some well-known brands are Kim Tien Thao, Cao Ich Mau, Khuynh Diep OPC medical oil… The OPC factory in Binh Duong is the first to manufacture ethanol in Vietnam and supply raw materials to some big manufacturers like Kinh Do, Nestlé Vietnam. **Weaknesses:** The majority of raw materials (80%) are imported from China. Fluctuation in raw material sources and its quality also pose a high risk. **Opportunities:** It is a worldwide trend to favor drugs that are derived from natural materials and health friendly. **Threats:** Main products of OPC are facing strong competition in the market due to its modest technology and intellectuality investment. Their products are prone to be copied. **Key leaders:** Mr. Le Minh Diem (1947 – Bachelor of Medicine – Member of BOD – Labor hero in the reforming era). Mr. Diem has taken control of OPC (formerly the Central Pharmaceutical Factory 26) since the very first difficult days of the 80s. He was the leader in the "Kim Tien Thao" project, the main product of OPC for the past decades. Management responsibility transfer is done during 2010 – 2011 when Mr. Trinh Xuan Vuong (1955 – Chairman) and Mr. Nguyen Chi Linh (1959 – CEO) were appointed to fill in for Mr. Le Minh Diem who was due to retire. Mr. Vuong and Mr. Linh were first members of OPC ever since its foundation and chief assistants of Mr. Diem during the years of development.
Comment	OPC is a brand name with a lot of positive recognition in the Southern market. However, simple product lines and the fact that no outstanding strategy has been developed ever since it was listed are reasons why it does not appeal to many investors. Besides, plans on changing functions of the headquarters at 1017 Hong Bang were abandoned, which is also an obstable to future development.

S.P.M PHARMACEUTICAL JOINT STOCK COMPANY (SMP – HOSE) – Pharmaceuticals

Founded in 1988	**Strengths:** SPM is famous for its MyVita multivitamin effervescent tablets which is the chief competitor of the imported product line named Pluzzz. Its brand name is well-known and recognized by most domestic consumers. **Weaknesses:** It depends entirely on the distributing activities of Do Thanh Co., Ltd. (the predecessor of the SPM Joint Stock company) with very large accounts receivable from this company. In addition, investments in other industries are not fruitful especially in real estate and mining which are major issues needing resolving. **Opportunities**: SPM is undergoing a comprehensive restructuring process and is now disinvesting from other industries to focus on its core operation, especially in treatment activities. The effectiveness of this restructuring plan directly affects the future of SPM.

Threats: The vague relationship between SMP and Do Thanh together with the inconsistencies in strategies and management among the leaders.

Key leaders: Mr. Dao Huu Hoang (1963 – Bachelor of Medicine of University of Medicine and Pharmacy – Chairman). He inaugurated S.P.M Joint Stock Company as well as the Director of Do Thanh Pharmaceutical, Ltd., which is closely related to S.P.M. Mr. Hoang is the one that has greatest influence in the company with his critical strategies.

Comment	MyVita multivitamin product is still the only strength of SPM and helps maintain business operation of the company. However, the development orientation of SPM remains unclear and there still exist the potential risks in financial investments in other industry sectors and internal receivables with great value, etc. In addition, SPM is not really concerned about the benefits of small shareholders as they are still deep in debt of dividend to small shareholders in 2011 - 2012 and has constantly delayed the shareholders' meeting offering an excuse about the Chairman's going away on business.

Pharmedic Pharmaceutical Joint Stock Company (PMC – HOSE) – Pharmaceuticals

Strengths: Sound finance. Products are not diverse but they win the trust from consumers. Some famous products are Povidine, B.A.R which is one of the very first functional foods in the market.

Weaknesses: No branch. Sales activities are carried out directly through 20 trucks and 80 salespersons. Production capacity of existing plants has reached the maximum threshold. Leaders are all beyond the age of retirement.

Founded in 1981

Opportunities: Opportunities are slim because it depends very much on the next management generations.

Threats: Products are not diverse leading to the increasing competition. Not yet having a plan on relocating the current factory and making investments in a new plant.

Key leaders: Mrs. Mai Thi Be (1942 – Vice president of the Board – CEO) has taken control of PMC ever since the very first days and is in charge of specialty products and sales strategy of PMC. Mr. Cao Tan Tuoc (1944 – Member of the BOD – Vice President – chief accountant) is also responsible for the financial and accounting plans since the first days of establishment.

Comment	The biggest problem PMC is exposed to is that all current key leaders are older than the age of retirement which is averagely 65 years of age. For that reason, I do hope the next leaders (to be appointed in 2014 for the 2014- 2018 tenure. The biggest shareholder is Sai Gon Pharmaceuticals Ltd. possessing 62.5% of the capital is bound to revive Pharmedic's operations in the future.

Ladophar Pharmaceutical JSC (LDP - HNX) – Herbal medicines: Specializing in products with complements extracted from the Artichoke plants (tea, functional foods). Strong distribution network in Lam Dong Province. Among the top 10 companies with their public disclosure of business information in 2013.

Hataphar Pharmaceutical JSC (DHT - HNX) – Pharmaceuticals: Internal shareholders and related individuals account for more than 50% of the equity. Specializing in powder injections, which is the only highlight in their business.

Bepharco Pharmaceutical JSC (DBT - HNX) – Pharmaceuticals: Ownership structure is quite dense when two major shareholders which are SCIC and Lien Thanh Seafood Processing JSC hold more than 63 % of the equity. Products and business operation have no salient features.

PP.Pharma Pharmaceutical JSC (DPP - HNX) – Pharmaceuticals: no prominent business operation. Profit after tax suffered a loss of VND5 bn in 2013 (for the first time ever since being

listed) due to the long-term interest charge for the investment in the two manufacturing factories with GMP- WHO standard namely Hai Son and Tan Tao.

2 UNLISTED DOMESTIC PHARMACEUTICAL COMPANIES

Turn back

Pymepharco Pharmaceutical JSC (PMP – OTC) – Pharmaceuticals

Turn back to RCD

Strengths: It is one of the few pharmaceutical companies in Vietnam to specialize in high quality medicines. In addition, it is receiving great support from its largest shareholder which is Stada Arzneimittel AG (Germany - 49 %). The company is thereby updated with production technology, management methodology and marketing and sales experience. Therefore, despite being oriented to high quality medicines whose prices are significantly higher than the average in the market, **Pymepharco is known to achieve the best growth** in both pharmaceuticals net sales (net sales in 2013: VND1.118 bn, 17.5 % higher than the same period in 2012) and net profit (profit after tax in 2013: VND187 bn, 39.6 % higher than the same period in 2013), and EPS (EPS 2013: VND15,738 per share, 11.3 % higher than the same period in 2012). Business information is publicly disclosed. *(see more details)*

Weaknesses: Still heavily dependent on imported raw materials (80%). Capital to expand the distribution network and investment in research is modest. Additional working capital is still limited. Therefore, Pymepharco was still borrowing VND153 bn at the end of 2013 to supplement its working capital, and simultaneously in 2013 issued more stock with 1:1 rate at the price of VND 12.000 per share to existing shareholders in order to acquire about VND107 bn.

Founded in 1981

Opportunities: Pymepharco is on the right track of development trends of the pharmaceutical industry in Vietnam in particular and over the world in general because it focuses on quality of medicines (instead of low-cost low quality drug lines) with its improved production lines meeting international standards. Funds from issuance in 2013 may also help Pymepharco complete its plan on upgrading its Cephalosporin injection factory to be qualified for EU - GMP standard in 2014.

Threats: Circular 01 (as replaced by Circular 36) of the Ministry of Health on bidding is still a major obstacle for companies like Pymepharco to invest into high quality medicines as it has to compete with drugs of the same type with lower quality and lower price as well. Network expansion strategy to increase the share of OTC channel to the target 40 % of total revenue will also encounter significant challenges from main competitors in the market (Imexpharm, Stada Vietnam, Mekophar, Savipharm...)

Key leaders: Mr. Huynh Tan Nam (1957 - Master of Economics - Chairman - CEO), Mr. Nam has been managing the company since July 1998 and has laid a solid foundation for the success at the present time. During just a short time from 2003 – 2006 – 2008, Pymepharco has completed the construction of modern pharmaceutical factories which are all certified by WHO - GMP, GDP, GSP. By 01/14/2013, Pymepharco was officially certificated by Ministry of Health in German to satisfy the European standards (EU - GMP) with its Cephalosporin Capsules production lines.

Comment	I greatly appreciate the performance and strategic orientaion of the business in the present time. From the fact that Pymepharco does have good vision and strong leadership, combined with the tremendous support of technology, production, marketing, sales from Stada Arzneimittel AG's, it is forecast that Pymepharco will quickly become one of the largest and most effective pharmaceutical companies in Vietnam in the foreseeable future. However, I think Pymepharco will only officially become an FDI company when the room 49% regulation for foreign ownership is waived. Therefore, the possibility of being listed on the stock market is not high.

Mekophar Pharmaceutical JSC (MKP - OTC) - Pharmaceuticals *Turn back to RCD*

Founded in 1975

Strengths: Sound finance. Special business orientation - one of the first pharmaceutical companies to establish a stem cell bank namely Mekostem specializing in collecting, analyzing, processing and preserving cord blood stem cells service. Gross profit margin of this segment in 2013 achieved over 70 %. Also one of the first companies in Vietnam to manufacture injection and infusion products in the 70s and 80s. A company with the greatest book value in the market (VND61.700 per share).

Weaknesses: Restricted distribution network expansion due to unclear provisions of the Law on investment. Profit margin of the self-manufactured products is relatively low compared to other leading companies (below 30 % compared to the average of above 50 %). The competitiveness of the self-manufactured products of Mekophar is not high either.

Opportunities: Potential development of the service sector to preserve stem cells in order to satisfy the demand for replacement and surgery in the future. Great demand is from both Vietnamese and foreigners who live and work in Vietnam.

Threats: Public awareness of the importance of storing stem cells (especially for children) and their personal finance to afford such kind of service (41 million dong for the first year, VND3 mn per year for the subsequent years) are the major drawbacks of Mekophar.

Key leaders: Ms. Huynh Thi Lan (1951 – Bachelor of Pharmacy, Bachelor of Laws - Chairwoman, CEO) has been managing MKP (formerly the Central Pharmaceutical Factory 24) since 1995. Mrs. Lan is the key leader to enable Mekophar to achieve remarkable success and delisted Mekophar shares in July 2012.

Comment

I think delisting MKP shares in 2012 was a significant step backwards in terms of public disclosure of business information even though the cause to do so is quite reasonable. I really expect MKP will be re-listed when the regulation on limiting companies with foreign investment from distributing pharmaceutical products in Vietnam takes effect (by the end of 2014 or 2015 at the latest). It should be also noted that MKP's business ownership structure is quite special considering the fact that leadership and the people involved are holding up to 24% of the equity (as of Feb 1st 2014).

Bidiphar 1 Pharmaceutical JSC (Bidiphar - OTC) – Pharmaceuticals *Turn back to RCD*

Founded in 1975

Strengths: Bidiphar 1 is also one of the few companies adopting its strategy based on product quality and careful selection in raw materials from reputable suppliers. It is also the first company in Vietnam to research and manufacture cures for cancer (Bocartin, Canpaxel…) and wins some franchised production contracts from foreign companies in Canada and Europe. Bidiphar is also the first company to research and manufacture injection, dry injection and infusion products which require modern technology and manufacturing processes under strict control and is greatly supported by Fresenius Kabi Pharmaceutical corporation (Germany). The authorized capital after equitization achieved VND269 bn (with the State holding 65%), revenue in 2013 was VND1.369 bn and profit was VND41.2 bn (net profit margin of 3%)

Weaknesses: The parent company's official comprehensive equitization was just on Jan 3rd 2014. Therefore, the information on performance, finance has not been disclosed. In addition to pharmaceuticals and medical equipment, Bidiphar parent company also makes investments in the field of mining, rubber cultivation and fisheries..., which are not their key strength of the business.

Opportunities: The potential of the injectable cancer cures of Bidiphar is huge given the context of increasing cancer in Vietnam.

Threats: the existing plants of Bidiphar only satisfy the WHO – GMP standard and there have not been plans on upgrading to higher international standards. Moreover, the main channel of Bidiphar is still ETC. That is the reason why Bidiphar has to encounter fierce competition from domestic and foreign competitors when bidding for supplying drugs to hospitals.

Key leaders: Mr. Nguyen Van Qua, Chairman cum CEO of Binh Dinh Pharmaceutical and Medical equipment JSC.

Comment	I really appreciate the focus on drug quality that Bidiphar is pursuing. Such development orientation and the current technology will help the company to make it further in the future. However, basing on the performance of the parent company in 2013, I think the information on performance was not fully disclosed and proved to be ineffective as well given that net profit margin was only 3%. This is partly because the company is transform from one member limited liability to joint stock company. The other cause can be of other investments in different industries of Bidiphar. I do hope after becoming a J.S.C, Bidiphar will have clearer disclosure of their business information in the coming future.

Vidipha Central Pharmaceutical Joint Stock Company (VDP - OTC) - Pharmaceuticals

Strengths: There are no outstanding strengths

Weaknesses: Profitability of the pharmaceutical products is relatively low compared to the average of the industry (gross profit margin in 2013 was only 21% compared with the average rate of above 45% of other companies).

Opportunities: Business operation is expected to be disclosed and improve after the company is listed.

Threats: Business activities are in the process of restructuring to improve efficiency. Vidipha has just finished its factory construction with WHO-GMP standard in the context that this standard is very popular in Vietnam and is about to be upgraded to higher standards. Shortage of investment capital and investment in real estate sector are also big risk to Vidipha.

Key leaders: Mr. Kieu Huu (Bachelor of Pharmacy – Chairman – CEO).

Savi Pharmaceutical JSC (Savipharm) – Pharmaceuticals: Business operation and finance are not publicly disclosed. Established in 2005 with its biggest shareholder being Becamex IDC. Awarded with GMP-WHO, GLP, GSP certificate in 2008 (renewed in 2010). In 2009, finished the construction of the plant and its facilities. Chosen by GlaxoSmithKline (GSK – England) to be a franchisee for some product lines and signed a 5-year franchised production contract (2011 – 2015) in 2010. By the end of 2010, awarded with GMP-Japan by PMDA – Ministry of Health of Japan. In 2012, it was rumored that Savipharm raised the drug prices *(see more details)* and registration numbers for new drugs were withheld by the Ministry of Health. *(see more details)*

Production standards : WHO - GMP, GLP, GDP, GSP, Japan - GMP (for 1 product line)

Hai Duong medical equipment JSC (HDPharma-OTC) – Pharmaceuticals: Authorized capital: VND30 bn. Business operation and financial information are publicly disclosed. Revenue in 2009 - 2013 rose by 20% per year reaching VND923 bn in 2013. Profit after tax increases averagely by 55%/year reaching VND27 bn in 2013. EPS2013 achieved VND3.320/share. *(see more details)*

Production standards: WHO-GMP, GLP, GDP, GSP.

Turn back to RCD

Vietnam Roussel Company – Pharmaceuticals: Formerly a joint venture of the Vietnam Pharmaceutical Corporation (Vinapharm) and Roussel Uclaf (France). After Roussel Uclaf disinvested, in 2003, the Ministry of Planning and Investment Vietnam Roussel decided to switch

Roussel from a joint venture company to a state-owned company under Saigon Pharmaceutical Co., Ltd. – Sapharco. In 2008, Roussel Vietnam became a subsidiary of Sapharco. 2014 marks 55 years of Roussel in Vietnam since it was founded. Financial information is not publicly disclosed.

Production standards: WHO - GMP, GLP, GSP.

3/2 Pharmaceutical JSC (F.T Pharma) – Pharmaceuticals: Member of Vinapharm. Common products. F.T Pharma's products feature injectable antibiotics and injections for neurological diseases, digestion. Business performance is fine *(see more details)*

Production standards: WHO-GMP, GLP, GSP.

Minh Dan Pharmaceutical JSC – Pharmaceuticals: was a joint stock company established with two main shareholders being Minh Dan JSC and Nam Dinh medical equipment and service JSC. No business information disclosed. No company website. On Aug 23rd 2013 , the Deputy Minister of Health Nguyen Thi Xuyen made a decision to withdraw 11 drug products of Minh Dan Pharmaceutical JSC (most of these drugs have main active ingredient namely cefuroxime and cephalosporin antibiotic - 2nd generation) out of the list of drugs supported by documents of bioequivalence. *(see more details)*

Pharmaceutical and military medical equipment JSC (Armepharco) – Pharmaceuticals: No financial information disclosed. Established in 1996. Equitization in 2010 with equity of VND130 bn. Three manufacturing factories but only one of them meets the WHO-GMP standard. Be able to manufacture injectable anesthesia, cardiac and vitamin supplements. Be able to manufacture simple medical devices and equipment.

Production standards: 1 pharmaceutical plant with WHO – GMP standard, medical equipment plant with ISO 9001-2000 certificate.

Thanh Hoa Pharmaceutical and medical equipment JSC (Thephaco – DTH – OTC) – Pharmaceuticals: Established in 1961. Equitization in 2002. SCIC holds 22% of equity and registered to disinvest in May 2013 but was unsuccessful. Thephaco has 2 factories with WHO-GMP standard and 945 workers. Common products with no highlights in business operation. Business information is clearly disclosed. *(see more details)*

Production standards: WHO-GMP, GDP, GLP, GSP, GPP.

TW1 Pharmaceutical JSC (Pharbaco) – Pharmaceuticals: member of Vinapharm. Noticeable highlight: Be able to produce Cepharlosporin power injection, small and large volume injection, dry injection powder and Non-betalactam injection products. Business performance is rather poor. *(see more details)*

Production standards: WHO-GMP, GLP, GSP.

TW 25 Pharmaceutical Joint Stock Company (Uphace) – Pharmaceuticals: Member of Vinapharm. Common products. Business information is clearly disclosed. Business performance is fine. *(see more details)*

Production standards: WHO - GMP, GLP, GSP

Danapha Pharmaceutical JSC – Pharmaceuticals: Member of Vinapharm. A factory manufacturing traditional medicine with WHO-GMP standard. Products feature sugar drinks as cures for nervous/epilepsy diseases. Business information is publicly disclosed. Fine business operation... *(see more details)*

Production standards: WHO-GMP, GLP, GSP

Agimexpharm Pharmaceutical JSC – Pharmaceuticals: Established in 1981. Equitization in 2004. Cooperating with Imexpharm in 2007. Officially renamed into Agimexpharm Pharmaceutical JSC in 2008. In early 2012, Agimexpharm finished the construction of the factory manufacturing products in the form of cream-gel-water which was approved by the DAV. Common products. Business performance is strong.

Production standards: WHO - GMP, GLP, GSP, GDP, GPP.

Tipharco Pharmaceutical JSC (OTC) – Pharmaceuticals: common products, business and finance information is clearly disclosed. *(see more details)* Two factories with GMP-WHO standard, 5 pharmacy centers, 1 branch with GDP standard, 4 pharmacies with GPP standard, 9 trading centers, 23 retail outlets, more than 430 agencies across Tien Giang province, coordinator network is spread across provinces.

Production standards: WHO - GMP, GDP, GSP.

TV.Pharm Pharmaceutical JSC – Pharmaceuticals: the first company in Vietnam to manufacture capsules drug. Business operation and financial information is clearly disclosed. *(See more details)*. Production line of injectable powder antibiotics (Travinat – Cefuroxim 750 mg). Business performance is fine.

Production standards: WHO - GMP, GLP, GDP, GSP.

S.Pharm Pharmaceutical JSC – Pharmaceuticals: Established in 1993, formerly Soc Trang Associated Pharmaceutical Enterprise. Equitization in 2002 with share equity of VND2,1 bn. In 2008, cooperating with Imexpharm and renamed into S.Pharm Pharmaceutical JSC with equity of VND20 bn. In 2009, finished construction of the factory with WHO-GMP standard. Common products. No business information disclosed.

Production standards: WHO - GMP, GLP, GSP.

Pharmaceutical and medical biological one member limited liability Company (Mebiphar) – Pharmaceuticals: Established in 1988. Currently have 260 workers and 1 factory in Tan Binh Industrial Zone with GMP WHO standard. 1 branch in Hanoi. 1 joint venture with Austrapharm (Australia) and 1 Saigon Optic JSC. Mebiphar current has 5 production lines with GMP-WHO standard and capacity of 1 bn items per year, 5 production lines of biological products, medical devices, (especially surgical sutures, umbilical clamp, urine test paper URITEST) and production line of glasses (lenses, frames, etc.)

Production standards : WHO - GMP, GLP, GSP

VCP Pharmaceutical JSC – Pharmaceuticals: Established in 2003 with 4 major shareholders (TW1 Pharmaceutical Ltd., TW1 Pharmaceutical JSC – Pharbaco, Sinopharm Pharmaceutical Corporation – the largest Pharma company in China, and ZJK pharmaceutical corporation – China. It features in injectable powder antibiotics namely Betalactam. Two factories manufacture Penicillin and cephalosporin injectable powder antibiotics with capacity of 50,000,000 bottles per year.

Production standards: WHO - GMP, GLP, GSP.

Glomed Pharmaceutical JSC – Pharmaceuticals: Formerly Cam Tu Pharmaceutical Co. Ltd, a major drug distributor in HCMC. Be able to manufacture injectable powder antibiotics for various cases. Business and finance information is not publicly disclosed.

Production standards: WHO - GMP, GLP, GSP.

Can Gio Pharmaceutical JSC (Cagipharm) – Pharmaceuticals: Established in 1982, formerly a unit under Sapharco, equitization in 2002. In 2008, Cagipharm put its factory with WHO-GMP standard in production based in Cu Chi Northwest Industrial Zone. The 3 sectors namely Non-Betalactam, Cephalosporin, cephalosporin injections are managed by the subsidiary with capacity of 400 million items per year. In spite of heavy investment in factories, sales performance does not look good when it suffer losses 2 years in a row – 2011 and 2012. Revenue is modest. *(see more details)*

TW Mediphantex Pharmaceutical JSC (Mediplantex) – Herbal medicines: Established in 1971, equitization in 2005 with the state shareholder holding 28% of equity. Mediplantex currently has 2 factories of pharmaceuticals meeting WHO-GMP standard with capacity of 500 million tablets per year and a sector extracting and processing raw and semi-synthetic materials to manufacture domestic herbal medicine. Products feature oil products, raw and semi-synthetic materials. Business information is publicly disclosed. Performance is not very prominent. *(see more details)*

Production standards : WHO - GMP, GLP, GSP

TW3 Pharmaceutical JSC (Foripharm) – Herbal medicines: member of Vinapharm. Specializing in manufacturing traditional medicines. Business information is publicly disclosed. Fine business operation... *(see more details)*

Production standards: WHO-GMP, GLP, GSP

Danapha – Nanosome Pharmaceutical JSC – Herbal medicines: member of Vinapharm and cooperate with AQP Pharmaceutical Company (Affordable Quality Pharmaceuticals) of the USA to manufacture functional product lines. Business operation and financial information is not disclosed publicly.

ICA Biotechnology – Pharmaceuticals JSC – Herbal medicines: Famous for its franchised production of Tobicom products for its Korean counterpart and cures for HIV and erectile dysfunction for the first time in Vietnam. However, business information has not been clearly disclosed for the past 3 years partly because of poor business performance.

Production standards: WHO - GMP, GLP, GSP

3 NOTICEABLE FDI PHARMACEUTICAL MANUFACTURING COMPANIES

Turn back

Sanofi Aventis Vietnam – Pharmaceuticals: It has been in Vietnam for over 50 years and currently has 1.000 employees nationwide, 2 distributing centers in Tan Binh Industrial zone and 2 factories with WHO – GMP standard based in district 4 and Thu Duc District (HCMC). The distributing center is qualified for GSP standard.

The main products include Calcium Corbiere (nutritional supplement), Plavix (preventing coagulation), Taxotere (cancer), Enterogermina (digestion), Amaryl (diabetes), Acemuc (coughing cure)… and other cardiovascular or infectious diseases, cancer and the like. Besides, Sanofi corporation has a branch of Sanofi-Pasteur vaccine specializing in supplying vaccine and serum to the market of vaccine injection in service and to some immunization programs in Vietnam for common diseases caught by children such as measles, diphtheria, tetanus, whooping cough and typhoid…

In 2013, Vietnam Sanofi Aventis has officially announced its construction project of the third pharmaceutical factory in Saigon Hi-tech park with a total investment of USD75 mn. The plant will

go into operation at the end 2015 with initial capacity of 90 million boxes per year and could rise to 150 million boxes per year.

Euvipharm Pharmaceutical JSC – Pharmaceuticals: Established in 2005 in Long An. The factory is 4.600 m^2 large and worth USD17 mn including sections for manufacturing betalactam and Non-Betalactam with WHO-GMP standard. Euvipharm is making continued investments in order to upgrade to EU-GMP standard and USFDA (USA). With this state-of-the-art factory meeting Europe standards, Euvipharm has attracted attention of foreign drug corporations. By the end of November 2013, Valeant Corporation (in the top 50 largest global pharmaceutical company specializing in cures for neurological diseases, dermatology and other infectious diseases) invested USD20 mn USD (VND423 bn) to purchase 65% shares issued for strategic shareholders from Euvipharm. This is done according to the strategic plan of M&A of Valeant and after this M&A deal, Euvipharm's authorized capital increases to VND542 bn compared to the initial VND190 bn before the issuance. *(See more details about investments in plants)*

ÉLOGE FRANCE VIETNAM Pharmaceutical Joint Venture – Pharmaceuticals: Established in 2006. In 2008, ÉLOGE FRANCE VIETNAM Pharmaceutical Joint Venture factory (Éloge France's counterpart) was awarded with GMP-WHO certificate by DAV. In September 2011, the 3 production lines of NonBetalactam, Penicillin and Cephalosporin were awarded with GMP-WHO certification. Common products. Business and financial information is not publicly disclosed.

Novartis Vietnam – Pharmaceuticals: available in Vietnam through 02 representative offices in HCMC and Hanoi. Besides, Novartis has cooperated with Imexpharm to franchising a generic line named Sandoz.

United Pharma – The Philippines – Pharmaceuticals: UIP (United International Pharma Co. Ltd) Vietnam is a member of Unilab Group with its branches in 10 countries in the Asia Pacific region. It manufactures about 350 pharmaceutical products in 13 modern factories in the Philippines, Indonesia, China, Thailand and Vietnam. In Vietnam, UIP currently has 2 factories: an old one with WHO-GMP standard and a new one meeting PIC/S-GMP standard launched in early 2012. This is the very first factory in Vietnam to be qualified for the PIC/S-GMP standard and it manufactures some common products like Decolgen, Atussin, Nutroplex, Alaxan, Dolfenal, Obimin, Ceelin, Clazic, Lifezar… satisfying 80% of demand of domestic market and the remaining 20% is for exporting.

Ranbaxy Vietnam – Pharmaceuticals: Ranbaxy Vietnam was established with investment license number of 031/GP-KCN-VS issued by Management of Vietnam – Singapore industrial zone on June 30th 2000. It specializes in Cephalosporin antibiotics with direct investment from Ranbaxy Netherlands BV (Netherlands). With the purpose of comprehensive restructuring Ranbaxy worldwide, in October 2009, Ranbaxy Netherlands BV transferred 100% of its capital and ownership of Cephalosporin antibiotics to ICA Pharmaceutical Biology Technology Corporation. After that, Ranbaxy Vietnam was renamed into ICA Rx. On July 1st 2011, Dong Duong Chemical Pharmaceutical JSC became the official owner of ICA Rx.

Thai Nakorn Patana Co., Ltd. (Vietnam) – Pharmaceuticals: It is a FDI company with 100% capital from the foreign Nakorn Patana company which is one of the largest corporations specializing in pharmaceuticals-beverages-cosmetics in Thailand. It has a factory meeting GMP-WHO standard in Phu Yen Province and is known in Vietnam with its product line of cough and fever cures branded Tiffy.

Medochemie Co., Ltd. (Cyprus) – Pharmaceuticals: Established in 2008 with 100% of investing capital from Medochemie corporation specializing in generics. Vietnam has 01 out of 11

manufacturing factories of Medochemie. The other 9 ones are based in Cyprus and the remaining 01 is in Netherlands. It has its factory located in Vietnam – Singapore industrial zone 02 in Binh Duong and was granted EU-GMP certificate.

Shinpoong Daewoo Pharmaceutical Co., Ltd. – Pharmaceuticals: member of the Shinpoong Pharmaceutical Corporation (Korea). It has a Shinpoong Daewoo Vietnam factory meeting GMP-WHO standard in Bien Hoa II industrial zone. Production lines include powder injections, tablets, capsules, creams and the like.

OPV Pharmaceutical JSC (Office Pharmaceutique du Vietnam) – Pharmaceuticals: Formerly the largest pharmaceutical company in the South of Vietnam (before 1975). During 1993 – 1999, OPV returned to Vietnam and restored its operation. In 2003, GMP factory which was worth $ 30 million was established forming a joint venture with Otsuka Pharmaceutical Company and Nomura Trading Company (Japan). In 2005, it met the WHO - GMP, GSP, GLP standards and signed a cooperation contract with GlaxoSmithKline (GSK - UK). In 2008, OPV joined the GSK's major manufacturers in the region.

United Pharm - South Korea – Herbal medicines: Established in Vietnam in 2000. Launched the first factory in the Vietnam - Singapore industrial zone in 2003 with an investment capital of 9.2 million USD. This plant has various production lines of functional foods, antibiotics and cancer drugs. The most renowned product is Homtamin Ginseng.

3 NOTICEABLE DOMESTIC PHARMACEUTICAL DISTRIBUTING COMPANIES

Turn back

TW1 Pharmaceutical One member Limited Liability Company (CPC1). Established in 1956. Officially launched in 1971 under the name "Level 1 Pharmaceutical Company". Converted into TW1 Pharmaceutical one member limited liability company in 2010.

Total number of employees is over 350. Four warehouses meet the GSP standard. They are all air-conditioned and are 8570 m^2 large (including a 120 m^2 area of cold storage). Offices and warehouses are in HCMC, Can Tho, Da Nang, Quang Ninh, Bac Giang, Nghe An, Gia Lai. Especially the warehouse in HCMC is 5000 m^2 large (for major customers).

TW2 Pharmaceutical One member Limited Liability Company (Codupha). Codupha was established in 1975 under the name Repository of Pharmaceuticals with the purpose of distributing finished drugs, raw materials, chemicals and medical equipment for the illness prevention and treatment in the South region. In 2010, it was converted into TW2 Pharmaceutical One member Limited Liability Company. There are 4 main warehouses with GSP standard directly distributing products to 59 out of 64 provinces nationwide. The number of workers is more than 300. *(see more details)*

IC Vietnam Co., Ltd.: This company is under the same system with ICA Biotechnology – Pharmaceutical JSC and specializes in distributing products to the companies in the system. Authorized capital is VND80 bn.

Dong A Pharmaceutical Co., Ltd: Established in late 1996. Major operation includes importing and distributing drugs, functional foods and medical equipment. Dong A is currently the main distributor of more than 50 pharmaceutical products originating from the USA, Poland, China, Eastern Europe, Vietnam… and other countries. Especially, its products prominently feature traditional medicines and functional foods. The number of employees is up to 400 and covers 56 out of 64 provinces nationwide.

Do Thanh Pharmaceutical Co., Ltd.: Established in 1995, formerly a pharmaceutical distributor under Tendipharco. Distributing network covers the entire country. The General Director cum chairman of BOD is Mr. Dao Huu Hoang. Do Thanh is the exclusive distributor of products manufactured by S.P.M JSC with its flagship being Myvita the multivitamin tablet.

Some other companies specializing in distributing namely Kinh Do Pharmaceutical Co., Ltd, Dong Do Pharmaceutical Co., Ltd., ATM Pharmaceutical JSC, Hoang Duc Pharmaceutical Co., Ltd…

4 NOTICEABLE FDI PHARMACEUTICAL DISTRIBUTING COMPANIES

Turn back

Diethelm Keller Siber Hegner (DKSH – Switzerland): Diethelm Vietnam is a company with 100% foreign investment capital and specializes in supplying services for warehousing, transportation, marketing and healthcare products. From 1991 to 1995, Diethelm returned to Vietnam after 100 years since its debut in the French colonial period and established its offices in HCMC, Hanoi and Danang. In 1999, Diethelm Vietnam Co., Ltd. was officially launched and constructed its distributing centers, warehouses in the Vietnam – Singapore industrial zone and later renamed into DKSH Vietnam in 2011. By the end of 2013, the scale of DKSH Vietnam was as follows:

- More than 2,266 pharmacists cover 100% of provinces and cities in Vietnam with 20 representative offices.
- More than 230 international and domestic suppliers doing 147.000 transactions a month.
- Providing service for more than 250 major customers and about 138.000 regular customers.
- All procedures were performed on the SAP system with its advanced technology and uniformity.
- 01 distributing center which is 25,000 m2 large in Binh Duong and 01 distributing center of 12.000 m^2 in Hanoi, not to mention other 6 distributing and logistic centers.

Zuellig Pharma (Singapore): The parent company of Zuellig Pharma VN (ZPV) is Zuellig Pharma Singapore (ZPS). In 1996, ZPS used to propose a joint venture project to Vietnam Pharmaceutical Corporation in the field of distributing pharmaceuticals however it did not go through due to lack of legal approval. After that, ZPV was officially launched in Vietnam in 2001 and was the only foreign company in Vietnam to have directly distributed imported drugs with approval of Administration of Hanoi Industrial park. As a result, 27 foreign manufacturers among which are the world-leading companies have chosen Zuellig to be their exclusive distributor in Vietnam given the sound finance and their years of experience in distribution. Sales continue to rise and occupy 26% of national market share in 2003. However, after price fluctuation in 2003, the reliable agency decided to withhold Zuellig's right to directly distribute pharmaceuticals, which has taken effect since Jun 9th 2003 *(According to the Ministry of Health, 157 out of 500 products with increased price from 2001 to March 2003 were of ZPV).*

From 2009 to 2012, some administrative agencies like the Government office, the Government Inspectorate, Ministry of Health constantly carry out inspection of Zuellig's operation. Specifically, on Mar 11th 2009, the Government office had an official dispatch No 1185/VPCP-QHQT regarding the decision of the Prime Minister to conduct inspection of ZPV's importing-exporting activities. On Nov 24th 2010, the inspection team presented its report regarding the inspection's results of ZPV from 1999 to the present time). Then on May 31th 2013, the Government office had an official

dispatch No 3878/VPCP-QHQT regarding the decision of the Prime Minister to have the Ministry of Health look into investment activities of ZPV.

Megalife Science (Mega We Care – Thailand): Established in Vietnam in 1993, Mega Life Science Co., Ltd. is a distributing company with 100% of foreign capital with their products being manufactured in Thailand, Australia and distributed in Vietnam. Besides, it distributes some foreign drug products with 5% market share nationwide. Mega We Care currently has 515 employees (most of them are pharmacists) in Vietnam with its headquarters in HCMC and one branch in Hanoi. Mega Lifesciences also promote and distribute a wide range of foreign drug products and those manufactured in Thailand through some domestic distributing companies. Products include cures for diabetes, antibiotics, treatment of osteoarthritis, gastrointestinal and many other products.

5 NOTICEABLE COMPANIES WITH ENTRUSTED IMPORTATION

Turn back

In fact, to the best of my knowledge, in spite of being limited by regulations on the prohibition against directly distributing drugs in the domestic market, the 3 foreign distributing companies can still directly distribute their products across Vietnam by cooperating with an intermediary unit which is often called “entrusted importer”. Such units will be legally responsible for invoicing and distributing. The two biggest entrusted importers in Vietnam are Vimedimex, Phytopharma. With this strategy, annual revenue yielded for those entrusted importers are substantial. However, they can only charge 1% - 3% of the value of the imported products, which is very small compared to the total sales. Specifically:

Vimedimex Pharmaceutical JSC (VMD - HOSE): Established in 1984 and functioned as the first implementing agency of Economic of External Affairs of the Ministry of Health. Equitization in 2006. Noticeable financial indicators:

- Total assets: VND5.098 bn. Short-term assets: VND4.941 bn (97%). Long-term assets: 157 VND bn (3%).
- Equity: 176 billion (3 %). Liabilities (97%)
- Net sales in 2013 reached VND10.485 bn (+17.3% compared to 2012)
- Gross profit margin was 8.4% (lower than the 8.9% rate in 2012).
- Profit after tax in 2013 reached VND21,5 bn (+41% compared to 2012, net profit margin was 0.2%).
- EPS in 2013 reached VND2.549 per share. ROE was 12.2%.

Vietnam Pharmaceutical Corporation holds 18.72% of equity. Internal shareholders and related individuals have 32.4% of equity and no other major shareholders are domestic and foreign companies.

Central II Pharmaceuticals Corporation (Phytopharma - OTC): Founded in 1977, equitization in 2002, also supplying pharmaceutical materials nationwide. Noticeable financial indicators:

- **Total Assets: 8271 bn dong. Short-term assets: VND8.251 bn** (99.7%). Long-term assets: VND20 bn (0.3 %)
- Equity: VND112 bn (1.3 %). Liabilities: VND8.152 bn (98.7%)
- **Net sales in 2013 reached VND5.564** (-16.1% compared to 2012).
- Gross profit margin reached 1.9% (higher than the 1.6% rate in 2012).

- Profit after tax in 2013 reached VND20,9 bn (compared with a loss of VND820 mn in 2012, net profit margin was 0.4%)
- EPS in 2013 reached VND4.977 per share. ROE was 18.7%.

The state shareholder (Vietnam Pharmaceutical Corporation) is holding more than 30% of the equity. However, in recent years, Phytopharma has been suffering from negative information about its leadership.

5 WHOLESALE MARKET - A DISTRIBUTION SYSTEM EXCLUSIVELY IN VIETNAM

Turn back

According to the standardized model in the world, most of drug products are sold through national wholesalers which are units supported by the Government and have very sound finance and their good reputation is won given the fact that they conduct careful inspections of drug quality making sure that there are no counterfeit drugs found and simultaneously narrow the price gap between the manufacturers' price and the market price. In the USA, the 3 biggest wholesalers include McKesson Corp, Cardinal Health and AmerisourceBergen. These 3 companies account for up to 85% of sales over the US market in 2010. In France, the 4 major wholesalers are Groupe OCP, Santé Alliance, Reseau CERP, Phoenix Pharma which cover the whole market in the country.

In Vietnam, Mr. Hoang Trung Hai, Deputy Prime Minister, would like the Ministry of Health to encourage building a model center of drug distribution directly under one state-owned business company (responsible for the origin of medicines and storing) instead of establishing drug distributing centers in the form of independent companies. The Ministry of Health also expects to build a model of pharmaceutical distribution center to take full responsibility in Hanoi and Ho Chi Minh City for the sake of more effectively controlling the distributing market.

However, reality shows that there are currently 2 wholesaling markets specializing in pharmaceuticals in the 2 biggest cities namely HCMC (To Hien Thanh and Ly Thuong Kiet market) and Hanoi (Ngoc Khanh and Lang Ha market) with To Hien Thanh being the most famous market (134/1 To Hien Thanh St.) This market was established in 2007 with an area of about 14.000 m^2 and was divided into different sections making a total of 270 pharmacies of more than 140 business companies with official registration licenses and about 300 unofficial multinational suppliers coming from England, the US, France, Germany, India, Korea, Thailand, etc. (including Zuellig Pharma, Mega Product, Diethelm) as well as more than 800 domestic suppliers bringing drugs to pharmacies, hospitals or private clinics with the help of drugstores in the market. The average number of people trading on a daily basis is 5.000.

Remarkably, wholesaling markets are capable of manipulating both foreign and domestic distributing companies. In some promotion campaigns, other than being offered higher discount by large pharmaceutical companies or by distributors for foreign corporations, such wholesalers with their strong finance will purchase all those discounted drug products creating a false shortage of product supply and later redistribute them to the market at much higher price in the hope of making a big profit. **Wholesaling markets are also home to pharmaceuticals of unclear origins, counterfeit, low quality, and sample or almost expired drugs without certification.** Such a variety of drugs, if possible, will be legalized and then redistributed to patients. Wholesaling markets also supply prescription drugs with adverse impact on human health namely Morphine (heavy and addictive painkillers), Valium, Diazefar, Seduxen, Lexomil (addictive sedative - high doses can be fatal).

6 NOTICEABLE PHARMACY CHAINS

Turn back

My Chau drugstore chain: It belongs to Minh Phuc Pharmaceutical JSC. My Chau Pharmacy 1 was established in 1987. Years of development have born another 8 branches and they all operate

individually. In April 2009, this company was bought and separated from Minh Phuc JSC and aimed to become a unified chain by taking advantage of the available drugstore chain named Y Duc with all needed business licenses. Mrs. Le Thi My Chau is the chairwoman of BOD and up to now, My Chau drugstore chain has a total of 18 branches. In 2010, it was accused of violating the laws on pharmaceutical business... *(see more details)*

ECO drugstore chain: Founded in 2008, ECO was the first company in Vietnam to be awarded GPP certification by the Ministry of Health. Target customers of ECO are those with average incomes. More than 60% of customers are patients being treated at hospitals.

PHANO drugstore chain: It belongs to PHANO pharmaceutical JSC. Established in 2007 under the V-Phano Pharmacy brand name, Phano has got 14 drugstore branches with GPP standard which are all located in HCMC. Customers of V-Phano are among the 3 groups: individuals and families, hospital pharmacies.

According to Mr. Ngo Chi Dung, General Director of ECO Pharmacy, investment in this drugstore chain has some highlights:

- ECO costs about VND3-4 bn while My Chau pharmacy needs VND5 bn for each drugstore branch. This cost includes the leasing fees, facilities, training staff and cost of purchasing goods.
- V-Phano has to invest about VND1-3 bn for each drugstore. This involves the leasing fees, staffing, and cost of purchasing goods with training cost excluded.
- A prerequisite for opening or working at a pharmaceutical drugstore is that the salesperson has to be at least qualified as an assistant pharmacist and has some knowledge about medicines. That is why the cost for pharmacist salespersons is much higher than other retailing types.
- Payback time is expected to be from 1 to 3 years depending on the size of the drugstore.

Comment	I contend that serious investment in drugstore chains in Vietnam is a strong tendency in the coming years for the 4 reasons as follows: • Drugs are more and more desirable. Drugs are ensured with clear origins and good quality together with quality consultancy of pharmacists according to the general standard of the world. • Competition pressure from corporations specializing in drugstore chains is emerging with prohibition against foreign corporations' distributing and retailing drugs being abolished. • Convenience for management agencies (provincial health departments) to effectively control the quality and cost of drug. • Convenience for pharmaceutical manufacturers to bring their products directly to consumers without going through all processes in the distribution network.

U.S. Food and Drug Administration

Drug Approval Process

What is a drug as defined by the FDA?

A drug is any product that is intended for use in the diagnosis, cure mitigation, treatment , or prevention of disease; and that tis intended to affect the structure or any function of the body.

PRE-CLINICAL

Drug Sponsor's Discovery and Screening Phase

Drug Developed

Drug sponsor develops a new drug compound and seeks to have it approved by FDA for sale in the United States.

1

Animals Tested

Sponsor must test new drug on animals for toxicity. Multiple species are used to gather basic information on the safety and efficacy of the compound being investigated/researched.

2

IND Application

The sponsor submits an Investigational New Drug (IND) application to FDA based on the results from intial testing that include, the drug's composition and manufacturing, and develops a plan for testing the drug on humans.

IND REVIEW

FDA reviews the IND to assure that the proposed studies, generally referred to as clinical trials, do not place human subjects at unreasonable risk of harm. FDA also verifies that there are adequate informed consent and human subject protection.

FDA's Center for Drug Evaluation and Research (CDER) evaluates new drugs before they can be sold.

The center's evaluation not only prevents quackery, but also provides doctors and patients the information they need to use medicines wisely. CDER ensures that drugs, both brand-name and generic, are effective and their health benefits outweigh their known risks.

CLINICAL

Drug Sponsor's Clinical Studies/Trials

PHASE 1

3

20-80

The typical number of healthy volunteers used in Phase 1; this phase emphasizes safety. The goal here in this phase is to determine what the drug's most frequent side effects are and, often, how the drug is metabolized and excreted.

PHASE 2

4

100's

The typical number of patients used in Phase 2; this phase emphasizes effectiveness. This goal is to obtain preliminary data on whether the drug works in people who have a certain disease or condition. For controlled trials, patients receiving the drug are compared with similar patients receiving a different treatment--usually a placebo, or a different drug. Safety continues to be evaluated, and short-term side effects are studied.

FDA DRUG SPONSOR

At the end of Phase 2, FDA and sponsors discuss how large-scale studies in Phase 3 will be done.

PHASE 3

5

1000's

The typical number of patients used in Phase 3. These studies gather more information about safety and effectiveness, study different populations and different dosages, and uses the drug in combination with other drugs.

Who reviews new drug submissions?

A team of CDER physicians, statisticians, chemists, pharmacologists, and other scientists review the drug sponsor's data and proposed labeling of drugs.

What other drug products are regulated by FDA?

Drugs include more than just medicines. For example, fluoride toothpastes, antiperspirants (not deodorant), dandruff shampoos, and sunscreens are all considered drugs.

NDA REVIEW

FDA's New Drug Application (NDA)Review

Drug Labeling

10

FDA reviews the drug's professional labeling and assures appropriate information is communicated to health care professionals and consumers.

Application Reviewed

DAY 60

8-9

After an NDA is received, FDA has 60 days to decide whether to file it so it can be reviewed. If FDA files the NDA, the FDA Review team is assigned to evaluate the sponsor's research on the drug's safety and effectiveness.

NDA Application

7

The drug sponsor formally asks FDA to approve a drug for marketing in the United States by submitting an NDA. An NDA includes all animal and human data and analyses of the data, as well as information about how the drug behaves in the body and how it is manufactured.

Review Meeting

6

FDA DRUG SPONSOR

FDA meets with a drug sponsor prior to submission of a New Drug Application.

Facility Inspection

11

FDA inspects the facilities where the drug will be manufactured.

FASTER APPROVALS

The **Accelerated Approval** program allows earlier approval of drugs that treat serious diseases and that fill an unmet medical need. The approval is faster because FDA can base the drug's effectiveness on a "surrogate endpoint," such as a blood test or X-ray result, rather than waiting for results from a clinical trial.

The **Fast Track** program helps reduce the time for FDA's review of products that treat serious or life-threatening diseases and those that have the potential to address an unmet medical need. Drug sponsors can submit portions of an application as the information becomes available ("rolling submission") instead of having to wait until all information is available.

Drug Approval

12 FDA

FDA reviewers will approve the application or issue a response letter.

POST-MARKETING

FDA's Post-Approval Risk Assessment Systems

PHASE 4

Because it's not possible to predict all of a drug's effects during clinical trials, monitoring safety issues after drugs get on the market is critical. The role of FDA's post-marketing safety system is to detect serious unexpected adverse events and take definitive action when needed.

Once FDA approves a drug, the post-marketing monitoring stage begins. The sponsor (typically the manufacturer) is required to submit periodic safety updates to FDA.

www.fda.gov/medwatch
(800) FDA-1088 (322-1088) phone
(800) FDA-0178 (322-0178) fax

MEDWATCH

FDA's MedWatch voluntary system makes it easier for physicians and consumers to report adverse events. Usually, when important new risks are uncovered, the risks are added to the drug's labeling and the public is informed of the new information through letters, public health advisories, and other education. In some cases, the use of the drug must be substantially limited. And in rare cases, the drug needs to be withdrawn from the market.

PDUFA

Prescription Drug User Fee Act

Since the PDUFA was passed in 1992, more than 1,000 drugs and biologics have come to the market, including new medicines to treat cancer, AIDS, cardiovascular disease, and life-threatening infections.

PDUFA has enabled the Food and Drug Administration to bring access to new drugs as fast or faster than anywhere in the world, all while maintaining the same thorough review process. Under PDUFA, drug companies agree to pay fees that boost FDA resources, and FDA agrees to time frames for its review of new drug applications.

7 DETAILS OF VALUE CHAIN OF THE WORLD'S PHARMACEUTICAL INDUSTRY

1

Gross profit margin of this group is about **46.6%**

(Mallinckrodt 2013)

Geographical location and the complexity of manufacturing raw pharmaceutical materials have greatly differed in the past decades with some pharmerging countries like China, India and Pakistan offering low cost of manufacturing. This entails a big risk of increasing number of low quality drugs. According to the latest statistics, in 2007, China and India accounted for nearly 70% of total supply of raw materials worldwide compared with the 49% rate in 2004. A survey conducted by Axendia in 2010 shows that 70% of their raw material suppliers are based in China and 57% are in India. Instead of self-manufacturing raw materials, nowadays, pharmaceutical companies are resorting to outsourcing workers in China and India for the sake of much lower cost. This tendency is catching on and Pfizer, GlaxoSmithKline and AstraZeneca – 3 out of the world's largest pharmaceutical corporations – are no exception.

Turn back

2

The main active pharmaceutical ingredients (APIs) in drugs (active ingredients are a main component of the treatment): the more purity these main active ingredients have, the more effective they are. For some antibiotics, major manufacturers with good reputation in Europe or the USA have adopted the fermentation and cultivation or natural synthesis technology to produce "clean" active ingredients that are environmentally friendly and have fewer side effects. Several manufacturers in China and India employ the chemical synthesis method so as to save more time and lower manufacturing cost and thereby yield more profit than the natural synthesis method. Worse still, certain chemicals used in chemical synthesizing are always of low purity and accordingly remain in the finished drugs in the form of residue. Taking such kind of drugs will cause some unfortunate side effects (such as acnes, diarrhea, dizziness, headache, allergies…) Some toxic residues can accumulate for a long time and finally lead to serious diseases like cancer or genetic diseases…

3

Excipients: This component is no cure for the disease but plays an essential part in the efficacy of the drug. In addition to "transporting" the active drug to the site in the body where the drug is intended to exert its action, excipients are important for controlling the drugs in the assimilation process quickly enough to reach the blood stream. **Formulas of excipients are a complete confidentiality of each pharmaceutical corporation and are decisive key to the efficacy of a drug.**

Turn back

4

Finished drugs are prone to loss or being counterfeited though such cases are not very common. To reach their end users, finished drugs have to go through many processes which usually start from the manufacturers to the wholesalers and then to hospitals and drugstores and to patients as known as end users. Law makers, manufacturers and distributors worldwide are making great effort in the hope of minimizing loss of drugs in the distributing process but the expected result is still a long way to go until very strict regulations on monitoring and inspecting are imposed.

5

Gross profit margin of this group is about **4.6%**

McKesson Corp: 5.7%

Cardinal Health: 4.9%

There are many organizations involved in the drug distribution multi-processes. Drugs can be traded between primary wholesalers and subsidiaries in bulk or retail. Then they will be packaged and labeled during the importation. Drugs can also be traded between secondary distributors or even brought back to the initial wholesalers before they reach their end users. Besides, in some cases, the secondary distributors do not really purchase drugs but merely doing logistic service for manufacturers, which makes monitoring the ownership transfer a really hard job. **However, in the world, manufacturers and distributers are basically independent units with their own expertise.**

In the USA, most of drug manufacturers sell their products through the three largest wholesalers: McKesson Corp., Cardinal Health and AmerisourceBergen. These 3 companies account for 85 % of the total U.S. market in 2010. In France, one of the countries with the most modern medical

Amerisource Bergen: 2.8%

industry, the distribution of drugs is carried out by the 4 major wholesalers namely Groupe OCP, Alliance Santé, Réseau CERP, Phoenix Pharma. These wholesalers all possess their teams of professional pharmacists with intensive training.

Turn back

6

Gross profit margin of this group is about **29%**

(Walgreen 2013)

Wholesalers will distribute drugs to central hospitals or to wholesalers of smaller scale or to secondary distributors. These secondary distributors often supply drugs to small hospitals, clinics and small drugstores which are all too small to be eligible for ordering drugs in bulk from leading wholesalers. Reality shows that in the USA, transaction between secondary distributors itself is rather complex when larger distributors can afford to order drugs in bulk with attractive discount or take advantage of clearance sales of their wholesalers. They will then sell these drugs to smaller secondary distributors and make a profit from the difference in price accordingly.

Turn back

7

Gross profit margin of drugstores is about **20% – 24%**

(according to NCPA)

In the USA and many European countries, doctors in hospitals and clinics all have an appropriate prescription regime. Prescriptions are thereby sold in boxes for the sake of convenience in controlling the drugs' prices with the help of the barcode printed on each pill box. However, in developing countries especially in Asia, prescriptions are given in doses, which gives the Administration a hard job to monitor the price charged on end users and end users themselves have no idea how much their drugs really cost either.

Report of the NCPA (National Association of American pharmacists), the average gross profit margin of pharmacies in the period 2006-2012 was **22.5 %.** The lowest rate recorded was 21.5% in 2006 and the highest was 23.4% in 2009.

Net interest margin of hospitals is about **+25%**

(according to Forbes' survey)

Forbes' survey at 24 hospitals with over 200 beds in the USA shows that they have a net profit margin (operating margin) of **over 25%.** Interestingly, the highest net interest margin is up to 53 % whereas the lowest is 12%.

8 MAJOR PLAYERS IN THE RAW PHARMACEUTICAL MATERIALS' SEGMENT

Turn back

High quality raw material suppliers

	Raw material	Supplier	Nation
Antibiotic	Amoxycillin trihydrate compacted	Sandoz	Spain
	Amoxycillin powder	Sandoz	Spain
	Ampicillin trihydrate compacted	Sandoz	Spain
	Azithromycin dihydrate	Fyse	Spain
	Cephadroxil granules	Sandoz	Austria
	Cephalexin	ACS Dobfar SPA	Italia
	Cefaclor	ACS Dobfar SPA	Italia
	Cefuroxim axetil	ACS Dobfar SPA	Italia
EEVER	Codeine base	Macfarlan Smith, Ltd	UK
	Paracetamol	Mallinckrodt INC	US

Low price (quality) raw material suppliers

Raw material	Supplier	Nation	
Alverin Citrat	Yangcheng Medical	China	Painkiller
Ibuprofen	Iol Chemicals And Pharm	India	
Codeine phosphate	Nanjing Aikon	China	
Paracetamol	Heibei Jiheng	China	
Diclofenac Sodium	Henan Dongtai Pharm	China	
Amoxicillin	Hangzhou Zhenghan	China	Antibiotic
Cefaclor	Zhejiang Jianfeng	China	
Cefadroxil	Xian Shunyi	China	
Cefixim	Shandong Lukang	China	
Cefuroxim	Jiangxi Dongxu	China	
Cephalexin	Hefei TNJ	China	
Azithromycin dihydrate	Zhejiang Guobang	China	

	Paracetamol	**Anqiu Luan**	**China**
ALLERGIES	Dexamethason acetat	Pharmacia & Upjohn Company	US
Ear – Nose - Throat	Phenylpropanolamin HCL	Cheng Fong Chemical	Taiwan
	Dextromethorphan HBr	F Hoffmann-La Roche, Ltd	Switzerland
VITAMIN	Ascorbic acid	Roche (DSM)	UK
	Ascorbic acid	Roche	US
	Pyridoxin HCL	Roche	Germany
	Thiamin nitrade	Roche	Germany
OTHER APIs & EXCIPIENTS	APIs/ excpipients	Roquette	France
	APIs/ excpipients	Chemi	Italia
	APIs/ excpipients	Tomita	Japan
	APIs/ excpipients	Dow Chemical	US
	APIs/ excpipients	ISP	US
	APIs/ excpipients	Univar	UK
	APIs/ excpipients	Dr. Lohmann	Germany
	APIs/ excpipients	Pancrease	Spain
	APIs/ excpipients	Crystal	Spain
	APIs/ excpipients	Spa Zambon	Italia
	APIs/ excpipients	Alkaloids of Pte Ltd	Australia
	APIs/ excpipients	BASF	Germany
	APIs/ excpipients	Faes Farma	Spain
	APIs/ excpipients	Seppic	France
	APIs/ excpipients	Rhodia Operations	France
	APIs/ excpipients	Sanofi Aventis	France
	APIs/ excpipients	Spi Polyols Inc	US
	APIs/ excpipients	Albemarle Corp	US
	APIs/ excpipients	Ocean Nutrition	Canada
	APIs/ excpipients	Nobilus ent	Poland
	APIs/ excpipients	PolPharma	Poland
	APIs/ excpipients	Weifa	Norway
	APIs/ excpipients	Osmo Pharm S.A	Switzerland
	APIs/ excpipients	Nitta Gelatin	Japan
	APIs/ excpipients	High Tech Pharm	South Korea

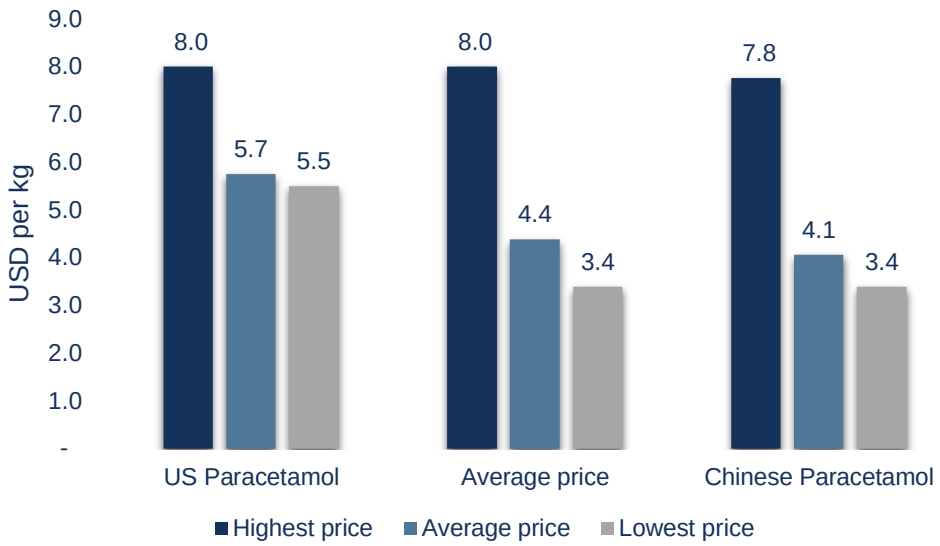
Turn back

	Roxithromycin	Zhejiang Guobang	China
	Chloramphenicol	Northeast Pharma	China
	Clarithromycin	Zhejiang Guobang	China
	Spiramycin Base	Wuxi Fortune Pharma	China
	Ciprofloxacin HCL	Shangyu Jingxin Zhejiang Guobang	China
	Amlodipine Besilate	Cadila Pharma Ltd	India
	Chloramphenicol	Northeast Pharma	China
	Ofloxacin	Zhejiang Apeloa Kangyu	China
Lipid regulator	Atorvastatin	Zhejiang Neo Dankong Pharma	China
Ear – Nose - Throat	Dextromethorphan	Dr Reddy	India
	Salbutamol Sulphate	Suprya Lifescience Ltd	India
	Bromhexine Hcl	Shanghai Shengxin Medicine Chemical	China
	N-Acetyl-L-Cysteine	Wuhan Grand Hoyo	China
ALLERGIES	Cinnarizine	Ray chemicals pvt. Ltd	India
	Cetirizine Di Hcl	Supriya Lifescience	India
VITAMIN	Vitamin C	Aland(Jiangsu)	China
	Vitamin B1	Jiangsu Brother Jiangxi Tianxin	China
	Vitamin B2	Chifeng Pharma	China
	Vitamin B6 Hcl	Jiangxi Sentai Jiangxi Tianxin	China
	Vitaminpp	Western Drugs	India
	Vitamin B5	Zhejiang Hangxhou Xinfu	China
Endocrinology	Dexamethasone Acetate	Zhejiang Xianju Pharma	China
DIGESTIVE	Cimetidin Type A	Changzhou Longcheng	China
	Domperidone Maleat	Sri Krishna Pharma Ltd	India
	Loperamid Hcl	Vasudha Pharma Chem	India
	Alverin Citrat	Yangcheng medical	China
ANTIDIABETIC	Metformin Hcl	Auro Laboratories	India
INFLAMMATION	Chlorpheniramin Maleate	Supriya Lifescience	India
	Metronidazole	Hubei Hongyuan Pharma	China
NERVOUS SYSTEM	Sulpiride	Jiangsu Tasly Diyi Pharm	China
	Piracetam	Jingdezhen Kaimenzi Northeast Pharma	China

To clarify the differences between the two sources of raw materials, I will analyze in depth the 3 main ingredients used by most of domestic pharmaceutical companies namely Paracetamol (painkillers, fever, headache), Amoxicillin Trihydrate (Penicillin antibiotics line for common infection) , Cefuroxime Acetil (Cephalosporin antibiotics line, chemically similar

to penicillin - treatment for middle ear infections, tonsillitis, throat inflammation, laryngitis, bronchitis, pneumonia, urinary tract infections, skin infections and gonorrhea…

Difference in price of paracetamol raw materials between two supplier sources



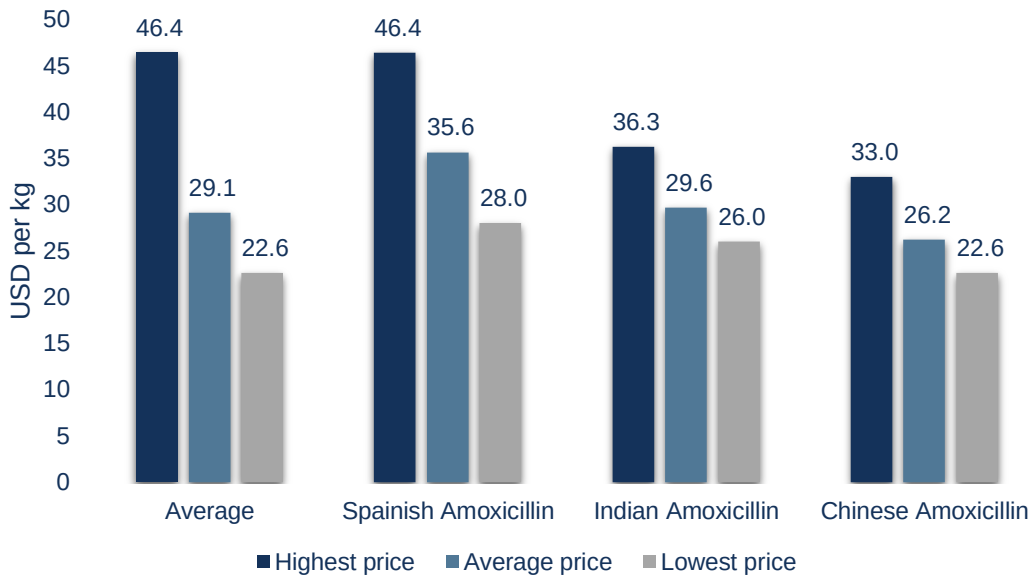
Source: FPTS

According to my statistics on prices of imported paracetamol, there is a substantial difference between raw materials originated in the US and those in China of about 39% in average. **Moreover, the difference between the highest price and the lowest price is attributed to the fact that the more goods are ordered, the more discount is offered; and this difference also depends on types of delivery, payment and time of purchasing…** Specifically:

- For raw materials manufactured in the US, the difference between the lowest and average prices is modest (3.6%). The difference between the highest and the average and lowest prices ranges from 40% to 45%. However, orders for highest price raw materials are just the minority, which proves the stability of price and quality of these raw materials.
- For raw materials manufactured in China, the difference between the highest and lowest prices is up to 129%, 90% for highest and average prices, 21% for lowest and average prices. This entails a fact that prices of raw materials from China wildly fluctuate given that there is a tiny number of high quality raw materials suppliers and an enormous others that supply low quality raw materials. The prices range from 3.4 USD per kg to nearly 8 USD per kg (135%) – a typical example for unstable prices and quality of such products. This may be partly because manufacturing these raw materials does not call for sophisticated technology so that there are few barriers to start up such a business.

Turn back

Difference in price of Amoxicillin raw materials between three supplier sources

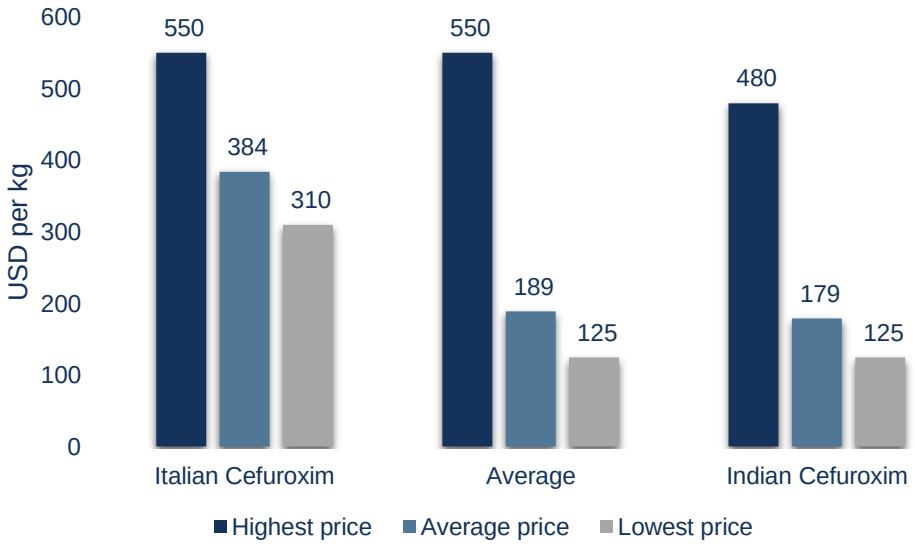


Source: FPTS

Turn back

For raw materials **amoxicillin trihydrate** needed for producing Penicillin antibiotics, the difference in prices of raw materials from Spain and China is up to 36%, Spain and India is 20%. In each group, the gap between the highest and the lowest price is rather big with 66% for the Spain group (with Sandoz having the highest price and Deretil SA and DSM having the lowest), 40% for the India group (2 major manufactures namely DSM and AUROBINDO with similar original prices which are later prone to fluctuation depending on the number of goods ordered), and 46% for the China group.

Difference in price of Cefuroxim raw materials between two supplier sources



Source: FPTS

Turn back

For raw materials for **Cefuroxim Acetyl** antibiotics of Cephalosporin group, the difference of up to 340% between the highest price and the lowest indicates the great variety of quality and reputation of manufacturers. Raw materials from Italy have rather stable price (ACS Dobfar S. A is the biggest supplier) whereas those from India have a huge gap of prices between suppliers (Covalent Laboratories and Nectar Lifesciences are the two biggest suppliers).

9 DIFFERENCES IN TYPES OF DRUGS

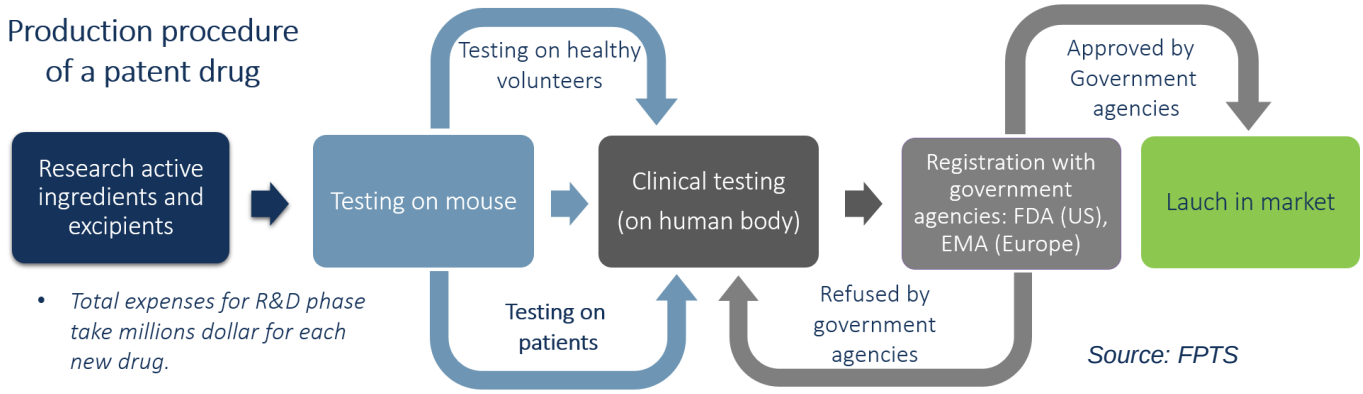
Turn back

Manufacturing generics is nowadays the mainstream trend in developing countries including Vietnam. However, **the quality of these generic drugs differs greatly** depending on the technology and development orientation of certain pharmaceutical companies. This surely has great impact upon quality and end users' health. Therefore, there is a huge gap **between HIGH QUALITY GENERICS AND LOW QUALITY GENERICS** with the main difference **being the quality of active ingredients and the secret excipients.**

To be able to **produce generics at low cost**, many pharmaceutical companies have to resort to low quality and cheap raw materials to have effective pricing competition and marketing irregardless of the low efficacy of their drug products. Users of such drugs have to prolong their treatment and thereby adversely affect their health especially when they have to take antibiotics for a long time which will cause antibiotic resistance (drug resistance)

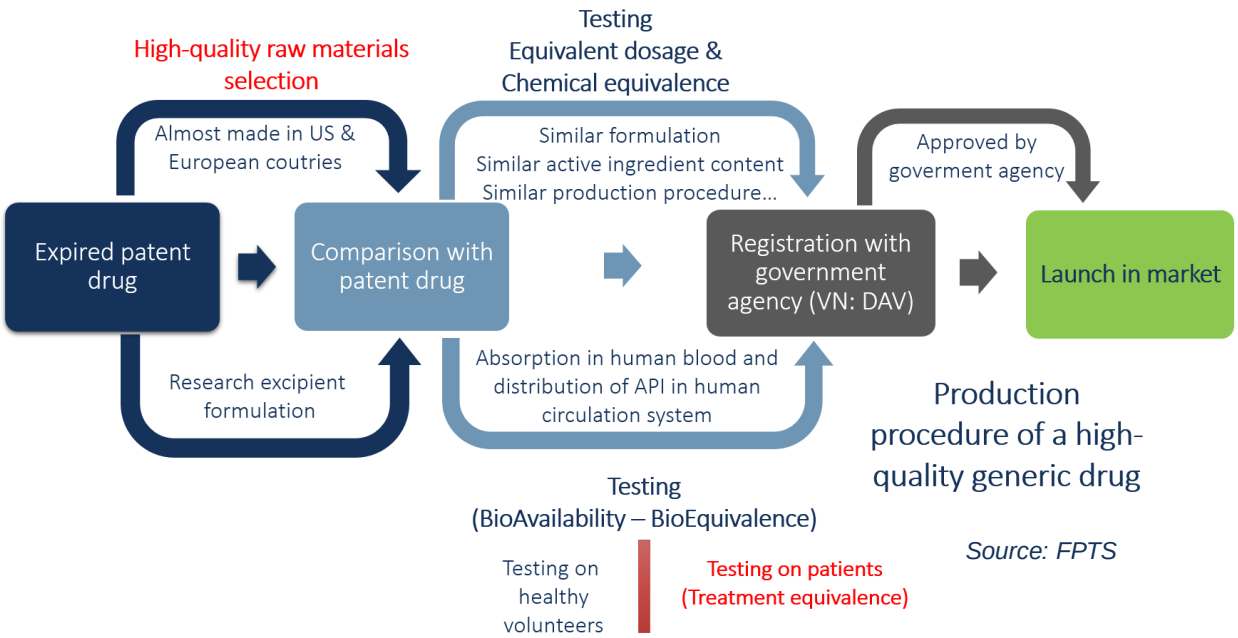
Manufacturers of Generics are only able to produce something which is broadly similar in main active ingredients to the originator drugs. However, excipients and the bioequivalence have to be determined by manufacturers themselves. This explains the reason why domestically manufactured drugs have far lower efficacy than originator drugs of foreign corporations.

Comparison between production processes of patent drug – high quality generic drug – low quality generic drug

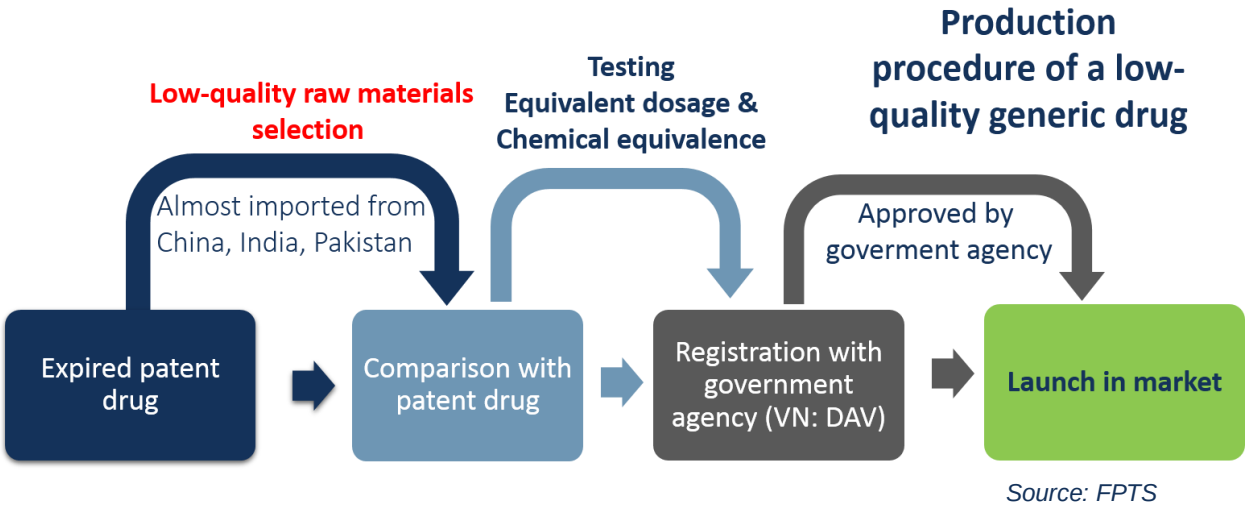


- *Total expenses for R&D phase take millions dollar for each new drug.*
- *R&D duration usually takes 3 – 5 year for each one.*

Source: FPTS



Source: FPTS



Source: FPTS

Turn back

10 DETAILS ABOUT THE JOINT CIRCULAR 36 AND THE JOINT CIRCULAR 37

Joint Circular No. 36/2013/TTLT-BYT-BTC issued on Nov 11th 2013 (as replaced for Joint Circular No. 01/2012/TTLT-BYT-BTC guiding drug bidding in the health institutions) and **Circular No. 37/2013/TT-BYT issued on Nov 11th 2013 of the Ministry of Health** (guidelines on making bidding Documents in the medical institutions as replaced for Circular No. 11/2012/TT-BYT): this Circular guides bidding to buy drugs in the public health institutions under procedures as follows:

- **Step 1:** This circular divides the bidding package into different technical standards: drugs meeting international standard PIC/S (PIC/S – GMP), European standard (EMEA), US Standard (USFDA) and WHO standard (WHO-GMP certification is awarded by Vietnam Administration of drugs); drugs of franchised production, bioequivalent drugs, proprietary medicines, traditional medicines – herbal drugs….

- **Step 2:** Bid dossiers satisfying requirements on criteria for evaluation, capability, experiences of contractors
- **Step 3:** Technical evaluation. In other words, quality and efficacy of medicines are evaluated. If the result shows 70/100, the drugs is considered qualified for this step.
- **Step 4:** Pricing evaluation with the principle of choosing the cheapest drugs

In my opinion, although the problems of drug quality remain unsolved, the Ministry of Health and Ministry of Finance have made sensible decisions with their favor for drugs of clear origins and high quality drugs from developing countries. I think this is a positive sign indicating the fact that drug quality is now of main concern to the management administration.

THE CRITERIA TABLE FOR TECHNICAL EVALUATION according to Circular No. 37/2013/TT-BYT

No	Criteria	Max score	Min score
1	Qualification of manufacturers	23	17
	To satisfy PIC/s-GMP or EU-GMP standard; (being/not being) countries participating in ICH and (have/have not) been certified by the Ministry of Health *Manufacturers of traditional medicines satisfying WHO-GMP standard*	*23*	*19*
	To satisfy WHO-GMP standard; and (have/have not) been certified by the Ministry of Health	*22*	*17*
2	Detected violations of quality within 1 year recently. (Non/Level 3/Level 2)	*15*	0
3	Quality violation of establishments producing medicines used for bid participation (Non/01 case/02 cases/+03 cases)	*10*	0
4	Shelf life of medicine (+3 years/2-3 years/-2 years)	10	6
5	Criteria for evaluation involving raw materials (active ingredient) used for production of medicines in bid participation (produced in countries participating in ICH/produced in countries not participating in ICH but granted CEP certificate/Others)	4	1
6	Criteria for medicine bioequivalence evaluation (BA-BE) (with BA-BE certification/without BA-BE certification)	4	2
7 & 8	Medicines produced from antibiotic raw materials produced domestically (domestic/imported raw materials)	4	2
7 & 8	Medicines used for bid participation are oriental medicines, medicines from herbal material (with GACP certification/clear origin/without clear origin)	4	0
9	**Characteristics of bidders** (Company directly manufactures drugs for bidding/ Company directly imports drugs for bidding/not an company directly manufacture/export drugs for bidding)	6	2
10	Supplying experience of bidders (over 3 years/less than 3 years/non)	6	2
11	Ability to satisfy requirements on delivery condition (Yes/No)	5	0
12	Bidders' commitment to the contract (won the bid & supply with agreed progress/ won the bid & supply behind schedule/not win the bid)	7	4
13	Bidders organizing GPP drugstore chains (Yes/No)	2	1
14	Bidders organizing drug distribution centers (Yes/No)	2	1
15	Bidders having a widespread system of distribution and provision at mountainous and difficulty-stricken areas (Yes/No)	2	0
	Total max score an company can achieve	**100**	**36**

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With this way of scoring, one company that passes round 2 (evaluating capabilities and experience) has at least 36 points. With priority criterion about quality being excluded and with no violation against drug quality within a year and ability to satisfy delivery conditions and others, this company can score 70 to be eligible for the technical round. This type of scoring, despite several additional points for drugs with clear origin and bioequivalence (max +5 points only), still clings to the pricing

element, not the quality instead even though total spending on treatment with low quality drugs sometimes higher than with high quality drugs because of their different efficacy.

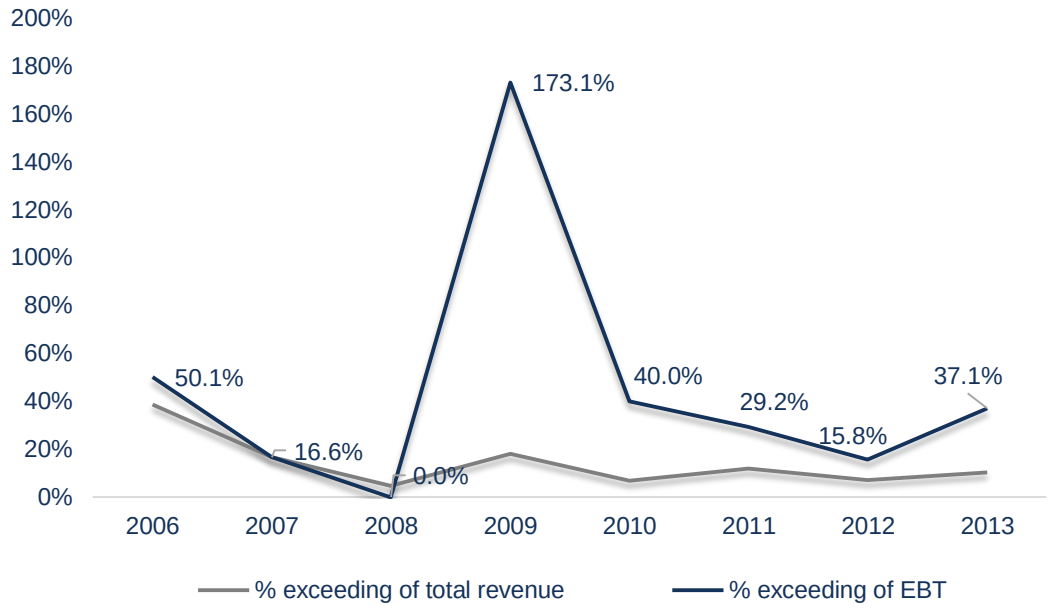
11 COMPARISON OF MANAGEMENT AND PLANNING QUALITY

Turn back

Evaluation of the ability of judging, planning and completing projects of the 04 listed companies with the largest market capitalization scale:

DHG Pharma J.S.C (DHG – HOSE)

Ability of planning and completing business plan



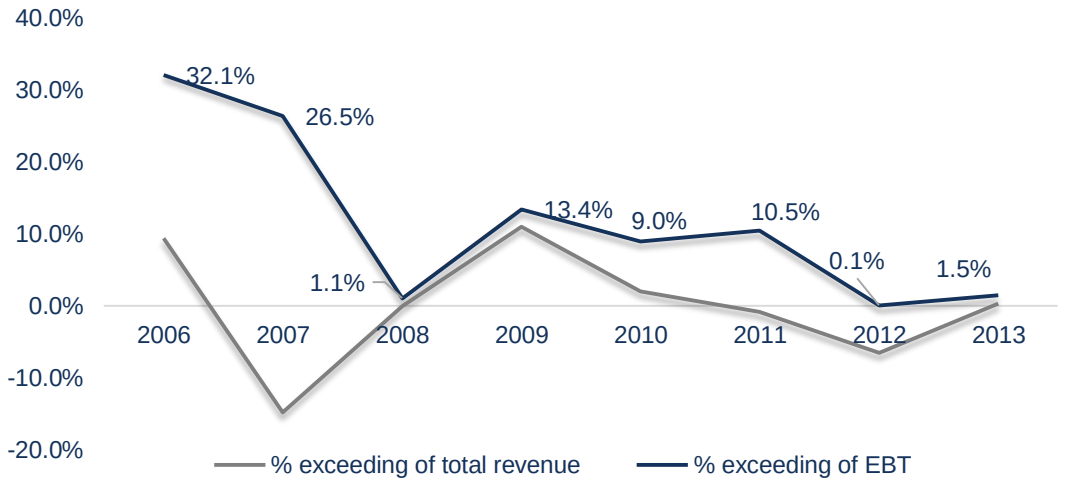
Source: Company's annual report, FPTS

Indicator	2006	2007	2008	2009	2010	2011	2012	2013
% exceeding of Total revenue	39%	17%	5%	18%	7%	12%	7%	10%
% exceeding of EBT	50%	17%	0%	173%	40%	29%	16%	37%
Compensation of BOM, BOD, Board of control	1.5% of planned EAT + 5% exceeding of plan	1.5% of planned EAT + 5% exceeding of plan	5% of planned EAT + 10% exceeding of plan	1% of planned EAT + 5% exceeding of plan	1% of planned EAT + 5% exceeding of plan	VND 3.8 bn + 5% exceeding of plan	VND5 bn + 5% exceeding of plan	VND5 bn + 5% exceeding of plan

➔ Basing on the above chart, it can be seen that DHG leaders always set a quite low target making profits before tax averagely 45% higher than planned. With the exception year 2009 being excluded, the average exceeded rate is 27%.

Imexpharm Pharmaceutical J.S.C (IMP – HOSE)

Ability of planning and completing business plan



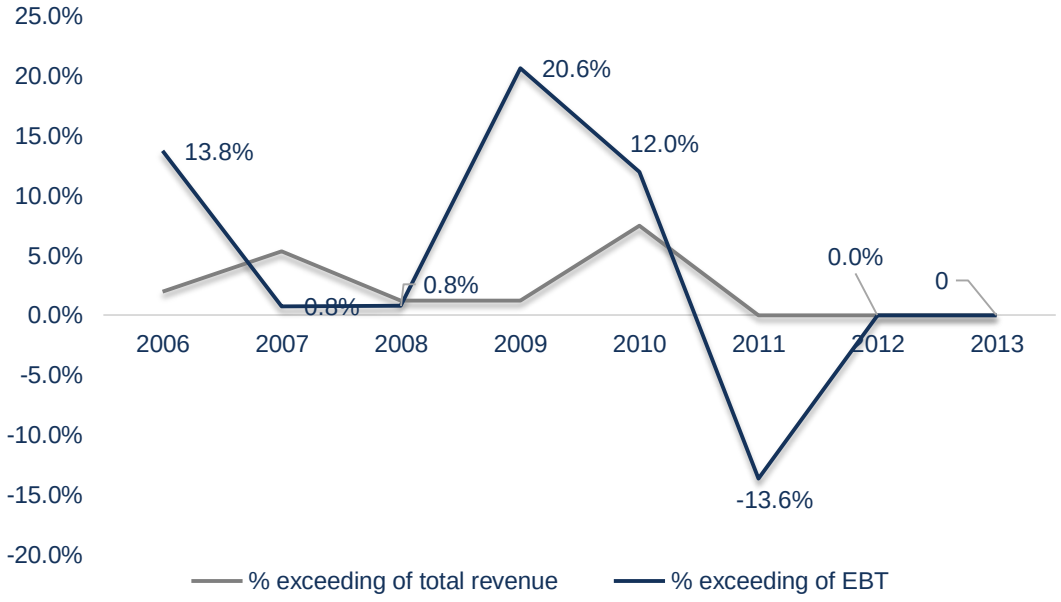
Source: Company's annual report, FPTS

Indicator	2006	2007	2008	2009	2010	2011	2012	2013
% exceeding of Total revenue	9%	-15%	0%	11%	2%	-1%	-7%	0%
% exceeding of EBT	32%	26%	1%	13%	9%	10%	0%	2%
Compensation of BOM, BOD, Board of control	1.18% of EAT	1.18% of EAT	1.18% of EAT	1.18% of EAT	1.18% of EAT ~ VND950 mn	1.27% of EAT ~ VND986 mn	1% of EAT ~ VND776 mn	n/a

➔ IMP leaders set their annual targets quite close to the real figures achieved with an average difference of 11.8%. Remuneration for those leaders is average too..

Domesco Medical Import – Export J.S.C (DMC – HOSE)

Ability of planning and completing business plan



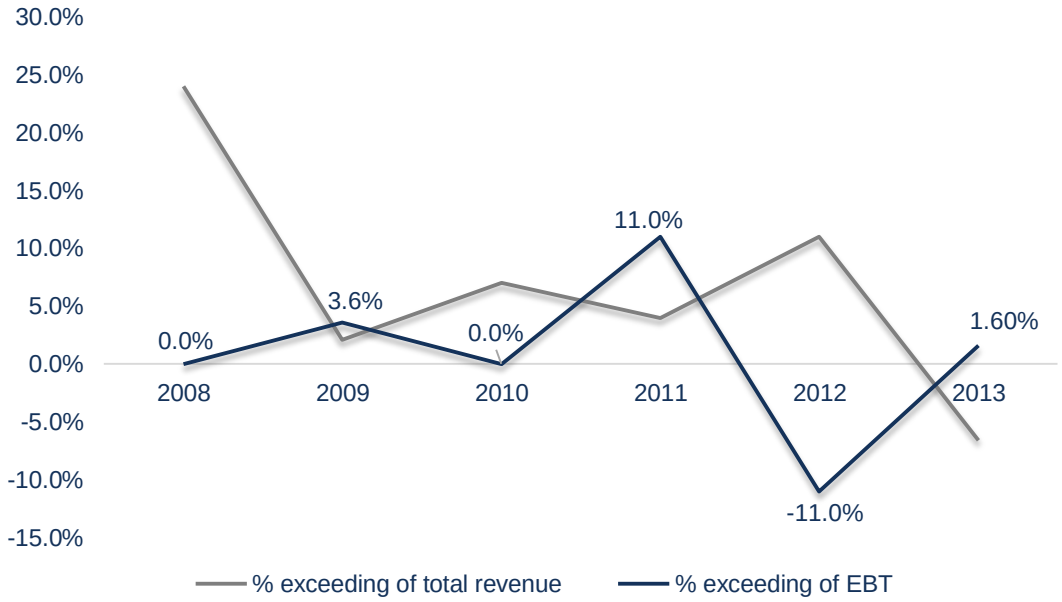
Source: Company's annual report, FPTS

Indicator	2006	2007	2008	2009	2010	2011	2012	2013
% exceeding of Total revenue	2%	5%	1%	1%	8%	0%	0%	
% exceeding of EBT	14%	1%	1%	21%	12%	-14%	0%	
Compensation of BOM, BOD, Board of control	n/a	n/a	n/a	1.1 bn dong	2% of EAT ~ VND1,7 bn	2% of EAT ~ VND1,6 bn	2.5% of EAT ~ VND2,7 bn	

➔ There is wild fluctuation between profit before tax as planned and the real figure achieved by DMC with only 86.4% of the plan being completed in 2011. In terms of revenue, DMC has reached its annual target. Remuneration for DMC leaders is about 2% of profit after tax.

TRAPHACO J.S.C (TRA – HOSE)

Ability of planning and completing business plan



Source: Company's annual report, FPTS

Indicator	2006	2007	2008	2009	2010	2011	2012	2013
% exceeding of Total revenue			24%	2%	7%	4%	11%	-7%
% exceeding of EBT			0%	4%	0%	11%	-11%	2%
Compensation of BOM, BOD, Board of control			3.6% of EAT	3.6% of EAT	3.6% of EAT	3.6% of EAT	3.4 bn dong	n/a

➔ In general, profit after tax of TRAPHACO is pretty close to its planned figures (except for the case of 2012 when profit after tax was about 89% of the figure planned). Remuneration for TRAPHACO leaders remains stable throughout the years and is based on profit after tax..

RECOMMEND EXPLANATION

This recommendation based on the difference between targeted value and market value of each stocks in order to provide appropriate information for investors in 12-month investment period from recommend day.

The expected at 18% is estimated based on 12-month government bond rate in addition to market risk premium in Vietnam.

Recommendation	Explanation
12 months period	
Buy	If targeted price is **higher** than market price 18%
Increase	If targeted price is **higher** than market price about 7%-18%
Monitor	If targeted price compared to market price **within** -7%-7%
Decrease	If targeted price is **lower** than market price from -7% to -18%
Sell	If targeted price is **lower** than market price -18%

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At making this analysis report time, FPTS hold 24 DHG stocks, 04 DMC stocks, 21 IMP stocks, 02 OPC stocks, 97 PMC stocks and analyst do not hold any pharmaceutical stock.

All related information to others stocks or this stock can be seen on http://fpts.com.vn/EN/ or provide when having acquirement.

FPT Securities
Headquarter
2nd Floor - 71 Nguyen Chi Thanh, Dong Da, Hanoi, VN
Tel: (84.4) 37737070 / 2717171
Fax: (84.4) 37739058

FPT Securities
HCMC Branch
3nd Floor , Ben Thanh Times Square Building, 136 – 138 Le Thi Hong Gam Str, Dist 1, HCMC, Viet Nam
Tel: (84.8) 6290 8686
Fax: (84.8) 6291 0607

FPT Securities
Da Nang Branch
100 Quang Trung, Thach Thang, Hai Chau Dist, Da Nang city, VietNam
Tel: (84.511) 3553 666
Fax: (84.511) 3553 888