



Iranian Pharmaceutical Industry in 1401 (2022/2023)

Economic Research Department, Middle East Bank

Winter 1402 (Dec, 2023)

بانک خاورمیانه
Middle East Bank



Iranian

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Note:

The dates in this Report follow the Persian Calendar, a solar calendar based on which years start on the first day of spring and end on the last day of winter. In terms of Gregorian Calendar, except for Leap years, Persian year normally covers the period between March 21 of a Gregorian year and March 20 of its succeeding year. The following table provides an easy reference while reading this Report.

1399= 20/03/2020 to 20/03/2021 (1399 and 2020 are Leap years)

1400= 21/03/2021 to 20/03/2022

1401= 21/03/2022 to 20/03/2023

1402= 21/03/2023 to 19/03/2024 (2024 is Leap year)

Executive Summary

The value of global market for pharmaceuticals in 2022 reached USD1,482 billion, up 2.2 percent from the USD1,450 billion in 2021. It is forecasted that this value registers USD1.9 billion by 2027, with an annual 4 to 6 percent growth rate on average. The Johnson & Johnson that ranked as the largest pharmaceutical company in the world prior to 2022, was defeated by Pfizer with USD100.3 billion revenues in 2022 due to the considerable sales of the COVID-19 vaccine. The share of R&D expenditures in revenues of large pharmaceutical companies has risen noticeably in recent years, especially in the aftermath of COVID-19 pandemic. The R&D expenditures of the world's fifteen largest companies aggregated USD138 billion in 2022 from USD82 billion in 2013, indicating annual growth rate of 6 percent on average. All in all, the ratio of R&D expenditures to sales has escalated from 16.6 percent in 2013 to 18.8 percent in 2022.

On the basis of the Food and Drug Administration of the Islamic Republic of Iran (IFDA), in 1401 there existed 307 pharmaceutical suppliers and 43 distributors in Iran. The sales value of the suppliers in 1401 totaled IRR1,221 trillion, of which IRR164 trillion was related to sales of imported products and the remaining IRR1,058 trillion was from sales of domestic products. Inefficient government policies in the pharmaceutical industry such as pricing as well as the exports limitations has caused the industry to have a small portion in the value-added of the domestic economy, i.e., its share in GDP in recent years has always stood below 0.5 percent.

In 1400, medicine constituted 31.8 percent of the out-of-pocket expenditures of Iranian households. Note that the share of expenditures in medicine in out-of-pocket has continually risen in recent years, albeit with higher pace among rural households than the urban ones. Consequently, this share among rural households is far above that of the urban households.

Both public sector and the private sector form the supply side of the Iranian market for pharmaceuticals. The Iranian Social Security Organization (ISSO), Bank Melli Iran, and the Execution of Imam Khomeini's Order (Known as Setad) are the major public owners of the pharmaceutical producers, hence bearing a considerable market share. In 1401, share of these three public organizations, respectively, in domestic sales of pharmaceutical reached 19.4 percent, 5.9 percent, and 6.0 percent. The private sector on the other hand is more active than the public sector with its market share increasing. In 1401, the private sector share in domestic sales of pharmaceuticals registered 51.2 percent.

Regarding pharmaceutical trades, the imports value of pharmaceuticals is far above its exports value in Iran. The exports of pharmaceuticals with annual average growth rate of 3.0 percent, from 2003 at USD29 million reached USD94 million in 2022. Whereas, the imports of pharmaceuticals to Iran from USD491 million in 2003 reached USD1.9 billion in 2022 with an annual average 7.7 percent growth rate. The Europe with share of 76.3 percent in total, was the main source of imports of pharmaceuticals to Iran in the year 1401. The Iranian pharmaceutical industry is much more dependent on raw materials than the final goods, i.e., 77 percent of the raw material expenses in IRR is from imports to be used for production of various types of medicine (pills, syrup, ampule) by domestic producers. In 1399, India and China altogether constituted 63.0 percent of imports of pharmaceutical raw materials to Iran, valued at USD582 million which may impose risk of centralization to this industry in Iran.

The total sales of the 33 listed pharmaceutical producers in Tehran Stock Exchange (TSE) from IRR250.1 trillion in 1400 grew by 63.3 percent to IRR408.5 trillion in 1401. This rise is mostly owed to the elimination of allocation of foreign currencies at official rates (based on USD/IRR exchange rate at 42 thousand) for essential goods imports from the mid-1401. The sales of listed pharmaceutical producers from IRR148.7

trillion in mid-1401 increased by 75.5 percent to IRR261.0 trillion in the mid-1402. It is estimated that in 1402, the sales value of the listed pharmaceutical companies stands 46 percent above that in 1401. In 1401, the net profit of the 33 listed pharmaceutical companies totaled IRR134.3, which is 67.6 percent higher than that in 1400. The price of pharmaceutical products in 1401 did not rise in proportion to the rise in cost of production in the aftermath of the elimination of the allocation of the foreign currencies at official rates aiming for imports of raw materials. Precisely speaking, compared to the first half of 1401 (hereafter referred to as 1401H1), in its second half, the profit margin of the listed companies with high dependence on imports of raw materials dropped by 5.7 percent, while that of the listed companies with low dependence on imports of raw materials only fell by 1.7 percent, on average. All in all, the net profit margin registered 32.8 percent on average for the 33 listed companies in 1401H1¹.

The balance of extended facilities to the pharmaceutical listed companies on 16/09/1402 (Dec 7, 2023) in the banking system totaled IRR286.2 trillion. On the other hand, the balance of extended facilities to the 15 large unlisted companies totaled IRR183.9 trillion on the same date. Middle East Bank (MEB) ranked as the 4th bank in extending facilities to all of the pharmaceutical producers (listed and unlisted) with the balance of IRR44 trillion. Note that the ratio of extended facilities to sales of the listed pharmaceutical companies averaged 71.0 percent in 1401, remarkably above that of the rest of the listed companies on TSE, translating to high dependence of the pharmaceutical industry on financing working capital from the money market. The value added of the pharmaceutical industry constitutes less than 0.5 percent of the GDP, while its share in the balance of total facilities of the banking system is estimated 1.2 percent. The outstanding sum of guarantees and letters of credits for the listed companies and 15 large unlisted pharmaceutical companies in the banking system totaled IRR43.5 trillion on 20/09/1402. Out of this figure, IRR42.2 billion belongs to bank guarantees and the remaining IRR1,265 trillion to letters of credits. MEB has stood at the 2nd place in terms of opening letters of credit and issuing guarantees for the aforementioned companies at IRR2.9 trillion in total. Regarding unfulfilled overdue foreign exchange obligations of imports, the pharmaceutical industry is in better conditions than the other industries. On the basis of the data issued by the Central Bank of Iran (CBI), such obligations are EUR66.0 million for listed companies and EUR35.9 million for the 15 large unlisted ones. The ratio of unfulfilled overdue foreign obligations to the total foreign obligations in the listed companies registered 2.2 percent and in the 15 large unlisted ones registered 2.1 percent. The considerably low unfulfilled overdue foreign exchange obligations of the aforementioned companies notwithstanding their high volume of imports indicates that their imports are low-risk.

After the elimination of exchange rate subsidy to pharmaceutical industry, in the early 1401, the Ministry of Health and Medical Education implemented a program based on which, the aforementioned subsidy was aimed to be paid to the insurance companies at the end of supply chain. Based on the government fiscal performance in the first four months of 1402, out of the legislated IRR230 trillion of the subsidies for pharmaceuticals in the Budget Law of 1402 for that period, only IRR120 trillion equivalent to 52.2 percent has been realized. This suggests that should the government does not pay the subsidies to the insurance companies, inevitably payments to pharmacies, distributors, and the producers from insurance companies would be disrupted. It subsequently results in putting pressure on the consumers shoulders.

Price control in conjunction with the inefficient allocation of exchange rate subsidy to producers and importers of pharmaceuticals are referred to as the main obstacles to the effectiveness of the pharmaceutical industry in Iran. The price control has ended up in diminishing in quality of products, higher smuggling, and overconsumption of medicine in Iran. Additionally, since the pharmaceutical companies ought to purchase foreign currencies in the secondary market (in which the exchange rates are below the free market rate), any shortage in supply of foreign currencies in that market adversely affects the pharmaceutical

1- In 1399 and 1400 the net profit margin for the listed companies was 37.6 percent and 32.1 percent, respectively.

industry. Hence, raising foreign currencies from the secondary market had consequences such as shortage in various types of medicine, lower quality of products, limited diversity of products, higher rent seeking, and finally inefficient combination of the factors of production.

1-Introduction

The pharmaceutical industry plays a pivotal role in any country. The competitive atmosphere of this industry has tempted the players to promote their share in global markets in order to gain more profit. Besides, due to the higher pace of globalization coupled with the free trade among countries, the pharmaceutical producers are spending more on R&D to expand their share in global markets. Notwithstanding the competition, the co-operation among large producers of pharmaceuticals has resulted in the formation of the multinational companies and consequently synergies from overflow of accumulated knowledges. Even though there is a narrow band between Iran pharmaceutical industry and the rest of the world, the Iranian pharmaceutical industry is worth to be explored due to its high and diverse level of production. In this Report, the Iranian pharmaceutical industry has been examined from various aspects.

2- Pharmaceutical Industry in the World

2-1- Value Chain in Pharmaceutical Industry

In order to better understand the value chain of the industry in detail, step by step exploration of the procedures is inevitable. The procedures are however, different due to the various types of medicine, methods of distribution, insurance, and finally the geographical position. To make sure that the applicants (patients) take the appropriate medicine conveniently, having a sophisticated value chain with the following features seems necessary:

- **Production:** this process consists of various steps from Research and Development (R&D) to license of sales. Each step is different from one medicine to another in any country.
- **Distribution:** it deals with the transfer of medicine from the producer to retail supplier (pharmacy), hospital, or physician. The methods of distribution are diverse due to the producers' location, need of imports, special needs, as well as the geographical location of the consumer.
- **Supply to the final consumer:** providing the consumer (patient) with the appropriate medicine punctually is the ultimate link in the value chain. This step could also include precautionary advices regarding the medicine consumption to the patient in order to make best of that.

Knowing the value-added of each stage in the value chain as well as the expenses, assists to reach a better comprehension of the pharmaceutical industry value chain. Table 1 depicts the probable costs and the value-added of the industry.

Table 1-Pharmaceutical Value Chain in the World

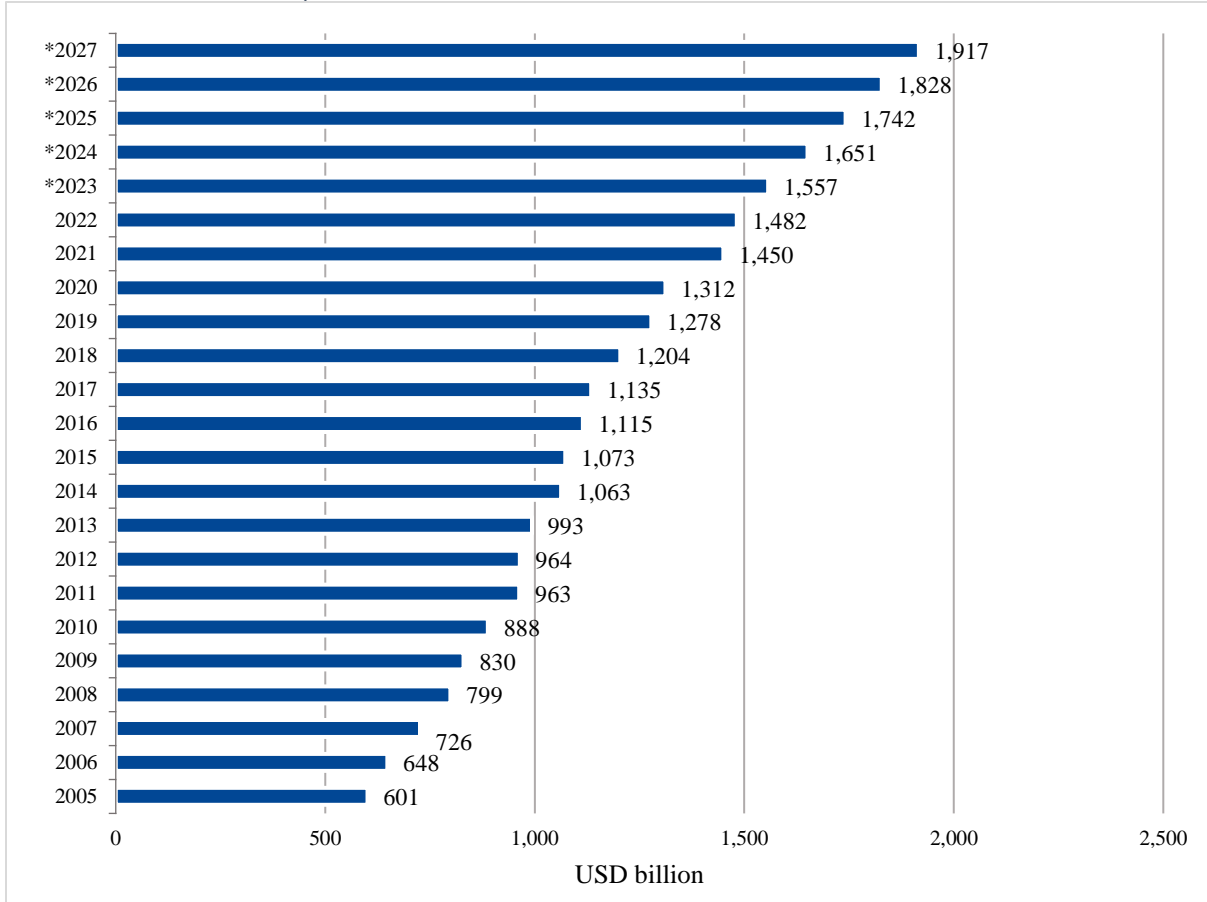
	Production	Distribution	Supply to the Final Consumer
Incurring Costs	<ul style="list-style-type: none"> - R&D - Cost of Production - Custom Fees and Taxes - Improvement, Promotion and Training 	<ul style="list-style-type: none"> - Receiving Medicine - Delivering - Costs due to expiration - Fixed Costs - Improvement, Promotion and Training 	<ul style="list-style-type: none"> - Receiving Medicine - Labor Force and Equipment - Waste of Medicine - Fixed Costs - Training
Value-added	<ul style="list-style-type: none"> - Innovation - Regulatory Documentation - Guaranteed Quality production - Training 	<ul style="list-style-type: none"> - Continuous Supply of Medicine - Waste Management - Orders Processing - Training 	<ul style="list-style-type: none"> - Availability of Medicine - Pharmacist Advice - Patient Convenience - Other Health Services - Training

Source: <https://www.iqvia.com>

2-2- Pharmaceutical Market Size in the World

On the basis of the report by IQVIA on the world medicine market outlook, the global demand for medicine is forecasted to rise to USD1.9 trillion by 2027 with annual growth rate of between 4 to 6 percent on average². Based on Graph 1, the market size for pharmaceuticals has risen from USD601 billion in 2005 to USD1,482 billion in 2022 with an average annual growth rate of 5.4 percent. The considerable expansion of the global market size of pharmaceuticals is mostly owed to the COVID-19 pandemic in recent years.

Graph 1-Pharmaceutical Market Size in the World From 2005 to 2027*



Source: <https://www.iqvia.com>

* Forecasted

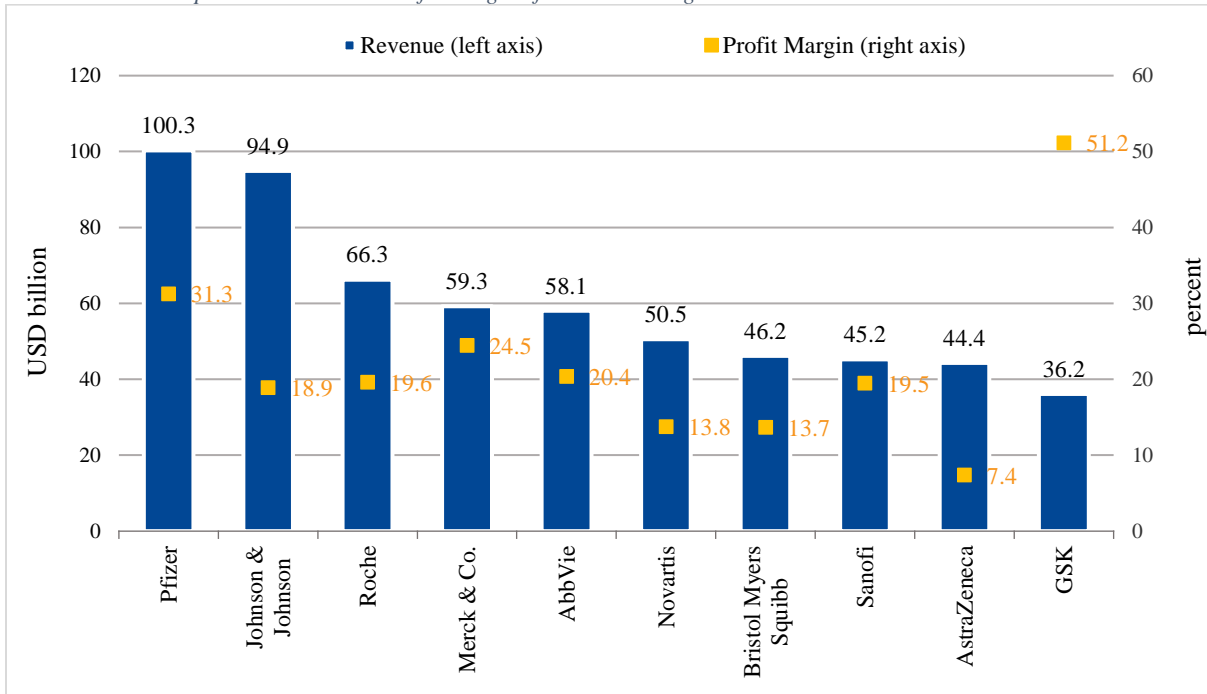
2-3- Revenues and Profit Margin of the World Largest Pharmaceutical Producers

Pfizer with USD100.3 billion revenues and profit margin of 31 percent ranked 1st among the world pharmaceutical producers in 2022. This place belonged to Johnson and Johnson prior to 2022 who was defeated by Pfizer due to the notable rise in its sale of COVID-19 vaccine. In addition, Pfizer experienced 141.1 percent rise in revenues from 2020 to 2022. In 2021 and 2022 Pfizer's proceeds from sales of these vaccines registered USD36.8 billion and USD 37.8 billion, respectively. Pfizer has forecasted about 33 percent drop in its revenues to lay between USD67 billion to USD71 billion in 2023³.

²- <https://www.iqvia.com/newsroom/2023/01/global-market-for-medicines-to-rise-to-19-trillion-by-2027-says-report-from-iqvia-institute>

³- <https://www.cnn.com/2023/01/31/pfizer-pfe-q4-earnings-2022.html>

Graph 2-Revenues and Profit Margin of the World Largest Pharmaceutical Producers in 2022



Source: <https://www.macrotrends.net>

2-4- R&D Expenses in Pharmaceutical Industry

The increase in number of the elderly, treatment of increasing types of chronic diseases, improvement in average life expectancy, emphasis on better life quality, and trying to make medicine accessible to everyone are the factors that academicians and authorities considered as the reasons of expansion of the pharmaceutical industry. It should be noted that R&D expenditures are inevitable but they may become fruitful even after a decade or longer. In pharmaceutical industry, R&D is categorized into two groups of clinical and preclinical studies.

2-4-1- Preclinical Studies

Any study regarding a medicine or treatment of a disease carried out prior to clinical trials (testing in humans) is referred to as preclinical study. Accordingly, the effectiveness of a medicine is supposed to be accurately verified in advance of testing in patients⁴. The preclinical studies are divided into four stages as follows:

- **Drug discovery:** this stage gathers data from a comprehensive database, originating from the advances in chemistry. Thanks to access to this database, the medicine analysts are able to find an appropriate material and detect an increase or decrease from the baseline normal for the target. It is a low yield and high effort stage as the researchers use it to test thousands of compounds against the targets to find potentially hundreds of candidates, with no statement on their efficacy.
- **Formulation development:** this stage assesses the best way to prepare a drug in the preclinical phase for its intended clinical use in patients. Factors such as solubility, frequency and mode of administration, stability of the formula, and palatability are all assessed in this stage. It takes into consideration where the disease or problem occurs.

4- <https://www.als.net>

- **Pharmacology:** This stage assesses the safety of a drug as well as its ADME i.e., Absorption, Distribution, Metabolism, and Excretion. ADME is the backbone of pharmacology.
- **Toxicology:** The toxicology studies aim to look at the effects of longer-term drug exposure on the body, including repeat dose studies. Pharmaceutical companies deliberately conduct studies over longer time periods than a human would take the drug for, with the duration of the study dictated by the anticipated exposure time that a human would face. During these studies, researchers assess parameters such as food and water consumption, body weight, hematology and urine analysis. These aim to monitor for any adverse effects that could arise as a result of taking the drug.

2-4-2- Clinical Studies

Clinical studies also known as clinical trials are aimed to test a medical, surgical, or behavioral intervention in a sample of individuals. These studies are preliminary methods by which researchers determine if a new medicine, diet, or medical device is safe and effective in people.

- **Phase I trials:** also known as human-safety trials, test a potential new drug at different dosage levels, generally in a small group of healthy volunteers in order to assess its safety in humans. For drugs with high levels of expected toxicity, the trial subjects are people with the targeted illness.
- **Phase II trials:** are larger and include only people with the medical condition the drug is intended to treat. This phase assesses the drug's biological activity and identify and characterize any side effects.
- **Phase III trials:** are larger still and assess a drug's clinical effectiveness. They can take years to complete. The smaller a drug's expected therapeutic effect relative to a placebo, the larger the number of patients that are needed in the drug's phase III trials so that the drug's true effect (if any) can be distinguished from random variation in patient outcomes.
- **Phase IV trials:** also known as pharmacovigilance trials, may be conducted after a new drug has reached the market. They look for side effects not seen in earlier trials and measure a drug's efficacy over longer periods of use than were studied in earlier trials.

It should be noted that these sorts of studies are risky and the canceled or filed projects are inevitable part of any development plan. Precisely speaking, some produced drugs even fail to be tested in clinical trials and out of the ones that are tested in human (during clinical studies), only 12 percent would be supplied in the market⁵. Recent researches suggest that the preclinical studies last 31 months and the clinical studies last 95 months on average.

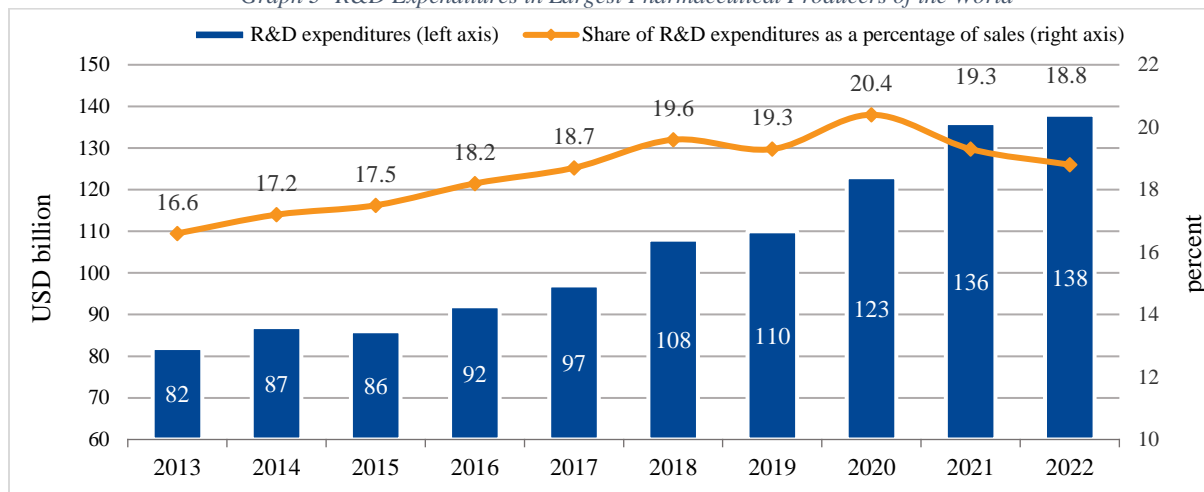
2-4-3- R&D Expenditures

The R&D expenditures of the 15 large pharmaceutical producers⁶ in the world by a 6.0 percent average annual growth rate has risen from USD82 billion in 2013 to USD138 billion in 2022 in total as shown in Graph 3. The R&D expenditures share in total sales of those companies that registered 16.6 percent in 2013 escalated by 3.8 percentage points to 20.4 percent in 2020. The surge in the R&D expenditures in 2020 and 2021 is attributed to the studies aimed to find a solution to combat the Corona Virus.

5- <https://doi.org/10.1016/j.jhealeco.2016.01.012>

6- AbbVie, Amgen, AstraZeneca, Bristol Myers Squibb, Eli Lilly, Gilead, GlaxoSmithKline, Johnson & Johnson, Merck, Novartis, Novo Nordisk, Pfizer, Roche, Sanofi, and Takeda

Graph 3- R&D Expenditures in Largest Pharmaceutical Producers of the World*



Source: <https://www.iqvia.com>

*On the basis of financial statements of the year ended Sep 30, 2022

In 2022, the Roche Company, a multinational based in Switzerland ranked as 1st in terms of R&D expenditures in pharmaceutical production in the world. The share of R&D expenditures to revenues of the top 10 pharmaceutical producers has been 17.6 percent on average. The details in this regard are shown in Table 2.

Table 2- Top 10 Pharmaceutical Producers in R&D Expenditures in 2022

	Company	Revenues (USD billion)	R&D Expenditures (USD billion)	R&D Expenditures to Revenues (percent)
1	Roche	66.3	14.7	22.2
2	Johnson & Johnson	94.9	14.6	15.4
3	Merck & Co	59.3	13.6	22.9
4	Pfizer	100.3	11.4	11.4
5	Novartis	50.6	10.0	19.8
6	AstraZeneca	44.4	9.8	22.0
7	Bristol Myers Squibb	46.2	9.5	20.6
8	Eli Lilly	28.5	7.2	25.2
9	Sanofi	45.2	7.1	15.6
10	AbbVie	58.1	6.5	11.2

Source: <https://www.fiercebiotech.com/biotech/top-10-pharma-rd-budgets-2022>

3-Pharmaceutical Industry in Iran

3-1- History of the Modern Pharmaceutical Production in Iran

The modern production of medicine in Iran is the same age as the medical education in Iran. In the Persian year 1229 (corresponding to 1850 Gregorian year), the pharmacy education started thanks to the efforts of Amir Kabir⁷ in Dar ul-Funun⁸. The official interpreter of the Iranian government in that era was responsible for hiring teachers. The courses were held by the European pharmacy teachers in Dar ul-Funun. Eventually,

7 -Mirza Taghi Khan-e Farahani, Chief Minister to Naser al-Din Shah Qajar from 1848 to 1851

8 -The oldest Western-style institute of higher education in Iran, established by the royal vizier to Naser al-Din Shah in 1851.

the preliminary domestic production of medicine was commenced after the establishment of School of Pharmacy, University of Tehran in 1313 (corresponding to 1934). The Late Dr. Abidi was one of the first graduates of that school who founded the first pharmaceutical company in Tehran, Iran with 25 employees in 1946. The history of Iranian pharmaceutical industry could be divided into five periods.

- **First period from 1320 to 1357 (1941-1978):** In this period, the foreign companies that aimed to better access the regional markets and cut costs of production, established some plants through joint ventures with Iranian parties in order to produce pharmaceuticals. As well as “Dr. Abidi” company, two other large companies named “Tolid Daru” and “Darou Pakhsh” were also established in the early years of this period. By the end of the period under review, Iran’s population was about 36 million and 20 percent of the pharmaceuticals was domestically produced and the rest was imported. In 1334 (corresponding to 1955), strict regulations were placed on production, pricing, and imports of pharmaceuticals. In 1357 (corresponding to 1978), many domestic, foreign, and binational private companies were active in the Iranian pharmaceutical market. In that year, the size of the Iranian pharmaceutical market registered USD225 million with about 3,500 various items of medical products. Out of these items, 80 percent was from imports and out of the remaining 20 percent, half of the domestic production was licensed by the foreign companies.
- **Second period from 1358 to 1370 (1979-1991):** During this period the government was the main contributor to the expansion of the Iranian pharmaceutical industry. In this regard and in the aftermath of the Islamic Revolution, foreign companies left Iran and also the war between Iran and Iraq started. Hence, the government coupled with experts was left with no choice but to find a solution to satisfy the needs for medicine. In the beginning of the period under review, the Organization of National Industries successfully acquired the shares of foreign parties in the pharmaceutical companies that were established prior to the Revolution via official negotiations or international legal procedures, hence most of those companies became state-owned. The acquired companies were developed or renovated and some other new pharmaceutical companies were established through new investments.

In the aftermath of the Islamic Revolution, in the late summer 1358 (1979), a three-day seminar was held, aimed to assess the implementation of Generic system in the Iranian pharmaceutical industry from various aspects. All in all, it was concluded that all the identical medicines in terms of chemical formula ought to be supplied with similar name and the same price. Due to the focus of the Generic system on domestic production, the government extended its intervention in the pharmaceutical industry to the extent that from 1359 (1980) government managers were appointed to the pharmaceutical companies. This translated to deprivation of authority from those companies. In the period under review, out of 40 domestic pharmaceutical producers, 28 became state-owned. The right to imports of medicine was also granted solely to the public sector.

As the pharmaceutical industry was widely under the government control, all the policy making and procedures regarding that industry was implemented through the Ministry of Health and Medical Education. The Ministry was also responsible for foreign currencies allocation to various segments of the industry at official rates. In addition to Ministry of Health and Medical Education, the Central Bank of Iran as well as some other organizations and Ministries were dealing with the industry, however, the former had the last word. Requiring the companies to pick a name based on the Generic system for identical products and price control on all types of medicines are referred to as the main signs of the vast presence of the government in the Iranian pharmaceutical industry during the period under review. The price control on the one hand, and overprotection of the industry on the other hand between 1359 and 1372 (1980-1992) caused the CPI in pharmaceuticals to stand below the overall CPI on average, indicating that the relative price of medicine has

diminished in that period. The year 1372 (1993) was the last year that the pharmaceutical industry benefited from the official USD/IRR exchange rate of IRR70.

In the aftermath of the termination of Iran-Iraq war in 1367 (1988) and at the beginning of the implementation of the first Five-year Development Plan, 91.9 percent of the demand for pharmaceuticals was satisfied by the 44 domestic producers. Out of domestic production, 87.6 percent of the pharmaceuticals in terms of amount was produced by the 26 state-owned producers and the remaining 12.4 percent by the 18 private producers. In addition, the imports of pharmaceuticals was totally carried out by the public sector.

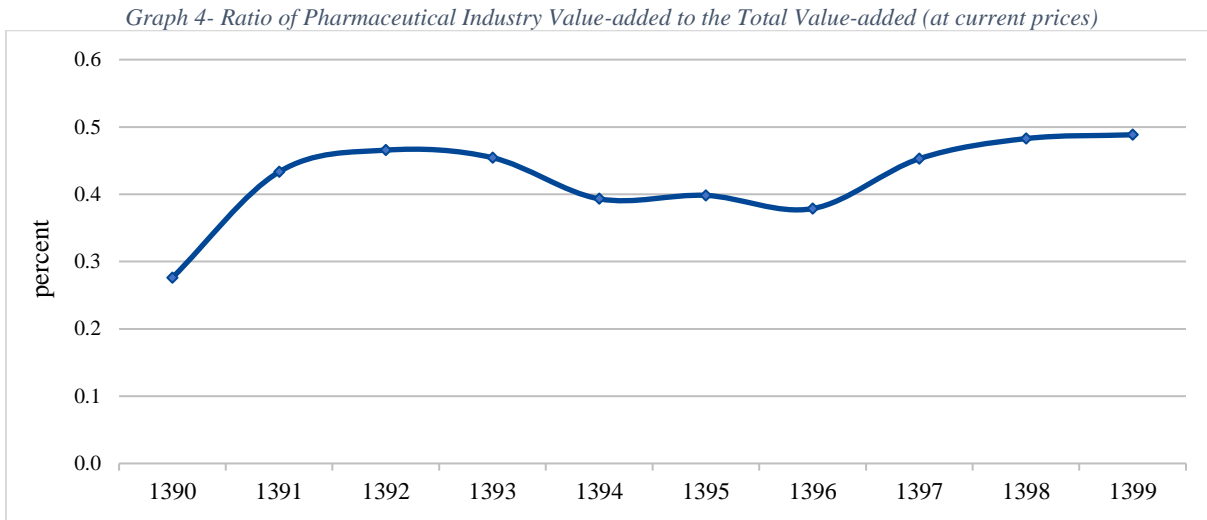
- **Third period from 1371 to 1380 (1992-2001):** This era is referred to as the development and expansion era of the pharmaceutical industry in Iran. In the period under review, the supply shortage resulted in the surge in investment in pharmaceutical industry and consequently new plants for production of medicine as well as raw materials were established. From 1371 (1992) onwards, in line with the Development Plan, the imports of a portion of pharmaceutical needs such as items for packaging and some necessary materials was subject to be carried out at free market exchange rates. Two years later, in 1373 (1994) the pharmaceutical industry was required to import all of its needs at free market exchange rates. Obviously, requiring the producers to provide their foreign currency needs from the free market on the one hand, and the weak system of health insurance would inevitably lead to surge in the medicine prices and hence deprivation of many patients from treatments. Consequently, the government decided to grant subsidies to the producers in order to prevent the price rises. By the end of 1370s, the Generic system change to Brand-Generic. Therefore, the subsidies and the production quotas set by the government were eliminated. In addition, the companies were entitled to choose their own brand, the role of private sector promoted, and finally the imports was considerably released from the government's monopoly.
- **Fourth period from 1381 to 1390 (2002-2011):** In this period new types of medicine such as soft capsules, prefilled (ready-to-use) syringes, and anti-cancer and anti-MS drugs were produced. The new methods of nanotechnology and biotechnology were also included in the methods of production in the period under review.
- **Fifth period from 1391 to 1401 (2012-2022):** In the aftermath of the imposition of sanctions in the beginning of this period the pharmaceutical industry faced new challenges. The sanctioning countries put an emphasis on exemption of pharmaceuticals and food from the sanctions. The main problem with the sanctions was, however with the imports of the raw materials that led to the disruption of the production cycle of the pharmaceuticals because from 1399 (2020) more than 77 percent of the raw materials were imported and some of them had dual use in other industries. Hence, proving that the imported dual-use raw materials are aimed to pharmaceutical production became a challenging task.

Implementation of the Health System Evolution Plan in 1393 (2014), entailed various costs such as cost of building and equipping the hospitals, high discounts to patients, cost of unnecessary medical tests, and excessive referrals to the specialists. However, as the Plan could not promote the efficiency of the health system, it became limited in the succeeding years. In 1394 (2014) and following the implementation of the Joint Comprehensive Plan of Action (JCPOA), the imports of pharmaceuticals was facilitated and also some foreign producers entered the domestic market for supplement medicines. In addition, the limitations on imports of medical equipment were considerably eliminated. However, the costs of pharmaceutical producers surged due to the severe Rial depreciation in the aftermath of the unilateral withdrawal of the USA from the JCOPA. In order to cope with that problem, the government started to allocate foreign exchange at official rate of IRR42,000 per USD (far below that of the free market) for imports of pharmaceuticals. This exercise exacerbated the problem and resulted in overconsumption of medicine, lower quality of

domestically produced medicine, increase in drug smuggling, lower diversity of products, and finally more corruption. From the early summer 1401 (Jun 2022), the government decided to cut the exchange rate subsidy to producers via increasing the USD rate to IRR285,000. In order to control the prices, the government on the other hand, decided to cover this exchange rate increase from budget sources and reallocated the subsidy not the producers but to the insurance companies. This plan that is known as Daruyaar, is highly dependent on the budget sources and hence it would be highly vulnerable to the budget deficit. Therefore, continuation of the Plan is highly exposed to the risk of budget deficit problem.

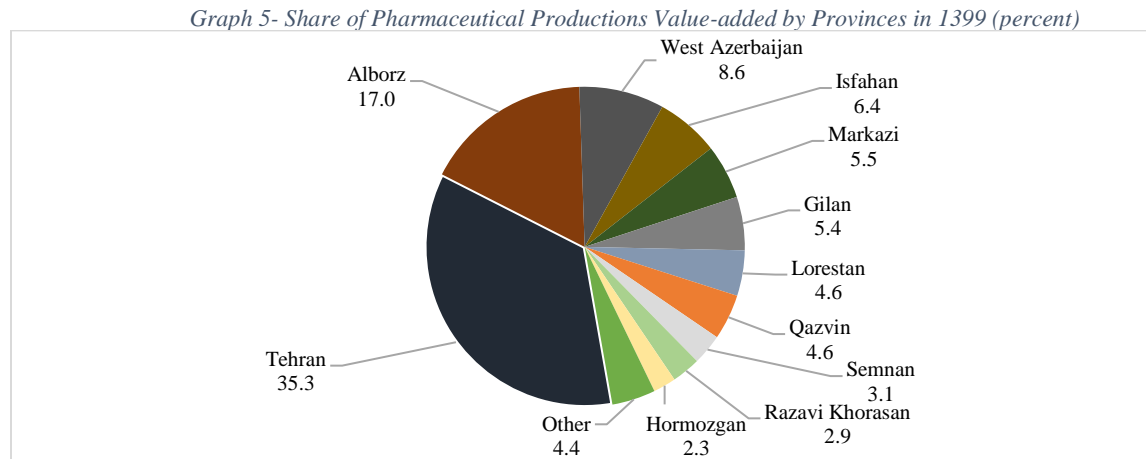
3-2- Pharmaceutical Industry in the Iranian Economy

As shown in Graph 4, the ratio of pharmaceutical industry value-added to the total value-added of the economy in 1390s has been always below 0.5 percent.



Source: Central Bank of Iran

The value-added of pharmaceutical industry by provinces indicates that Tehran, Alborz, and East Azerbaijan constitute respectively 35.3 percent, 17.0 percent, and 8.6 percent of the total value added of the pharmaceutical productions (producers with 10 workers and more) in the country in 1399 (2020), ranking as the first three provinces. Graph 5 depicts share of pharmaceutical industry value added by provinces.



Source: Statistical Center of Iran

3-3- Pharmaceuticals Market Size in Iran

According to IFDA, there existed 307 producers and 43 distributors of pharmaceuticals in Iran in 1401. The sales value of those 307 producers in 1401 totaled IRR1,221 trillion out of which, IRR164 trillion was from imports and the remaining IRR1,058 trillion from sales of domestic products⁹.

In Graph 6, the largest Iranian pharmaceutical producers are shown by their share in total sales in 1401. Dr. Abidi company with 6.6 percent share in total sales of pharmaceuticals ranks as first among producers in 1401. The 20 companies shown in Graph 6 constitute 51.1 percent of the total sales value of pharmaceuticals in Iran.

Graph 6- Share of Largest Pharmaceutical Producers in Total Sales in 1401* (percent)



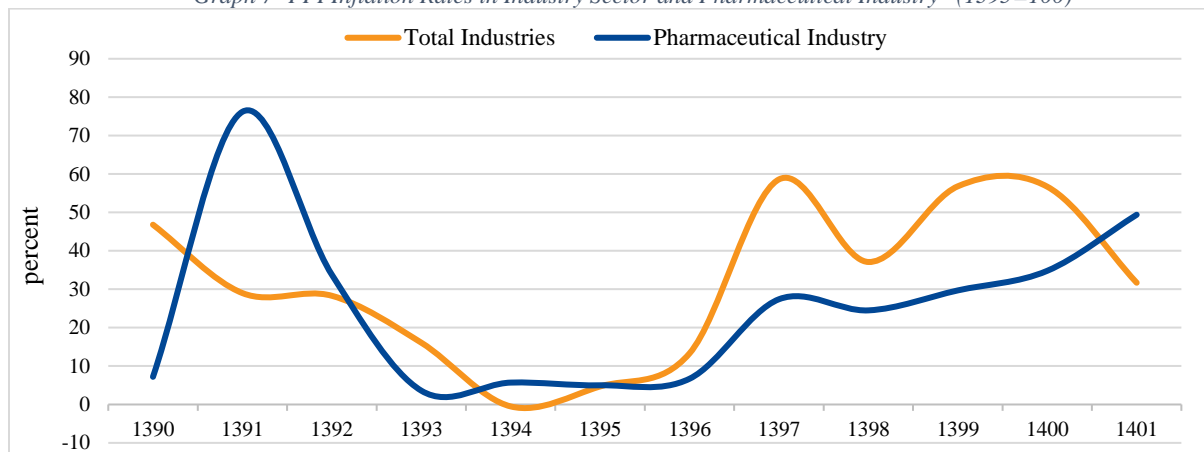
Source: Food and Drug Administration of Iran
 * Share in total domestic products plus the imports

3-4- Producer Price Index in Pharmaceutical Industry

The Producer Price Index (PPI) of the pharmaceutical industry has not moved in line with the total PPI of the industry sector due to the price control and exchange rate subsidies. Precisely speaking, in order to offset the effect of severe depreciation of Rials on the pharmaceutical industry in recent years, the government has granted the pharmaceutical industry facilities including exchange rate subsidies, loans, and tax discounts. This protectionism has always been aimed to price control, however in the long term the government had been left with no choice but to limit or eliminate that policy. This has caused the PPI inflation rate of pharmaceutical industry to surpass the total PPI inflation rate of the industry sector in 1391 and 1401 (2012 and 2022). Graph 7 shows the PPI inflation rate of the pharmaceutical industry coupled with that of the industry sector from 1390 to 1401.

9- The data released by the Food and Drug Administration is gathered from pharmaceutical producers and importers.

Graph 7- PPI Inflation Rates in Industry Sector and Pharmaceutical Industry* (1395=100)



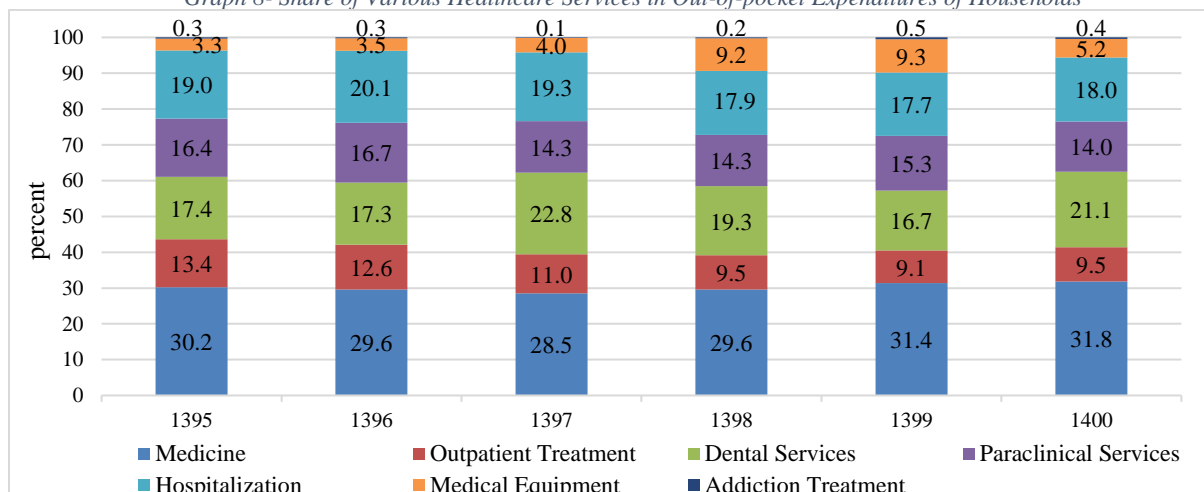
Source: Statistical Center of Iran

*Including production of pharmaceuticals and chemicals used for pharmacy and herbal medicine

3-5- Share of Pharmaceuticals in Out-of-pocket Expenditures of Households

The developments of the share of healthcare services in the out-of-pocket expenditures¹⁰ of households from 1395 to 1400 are shown in Graph 8. These services include medicine, outpatient treatment, hospitalization, dental services, addiction treatment, medical equipment, and paraclinical services. According to Graph, shares of dental services and medical equipment in out-of-pocket have been ascending, whereas those of outpatient and paraclinical services have been descending. Dental services experienced the highest rise in share of out-of-pocket expenditures in 1397 (2018). It should be noted that a significant portion of the out-of-pocket expenditures of households are spent for medicine, albeit prior to exchange rate shock of 1397 (2018), this share was descending but again started to rise after the shock. Given the rise in USD/IRR exchange rate for imports of pharmaceuticals in 1401 and 1402 (2022-2023) and the deficiencies of the Daruyaar Plan, share of medicine in out-of-pocket expenditures seems to have surged in recent two years.

Graph 8- Share of Various Healthcare Services in Out-of-pocket Expenditures of Households

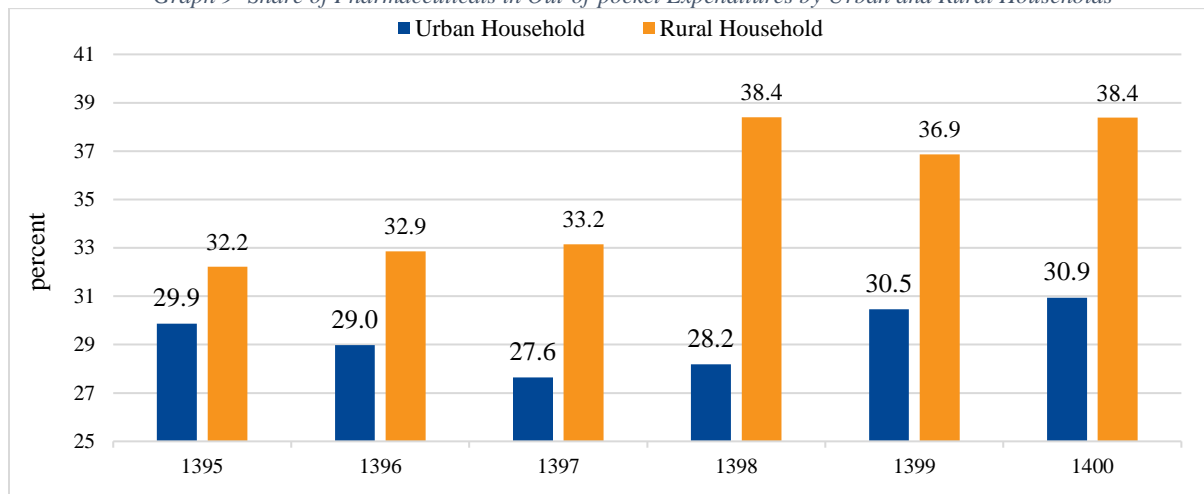


Source: National Institute of Health Researches of Iran

10- Amount paid by consumers (patients) that is not covered or reimbursed by the insurance companies.

The share of medicine in out-of-pocket expenditures of rural households are far above that of the urban ones. The share of those expenditures has escalated for both rural and urban households in recent years, however, in the former group at a higher pace. The higher share of medicine in out-of-pocket expenditures in rural households than the urban ones could not be necessarily translated to weak insurance coverage of rural households. This could be attributed to self-medication (arbitrary use of medicine) due to lack of access to physicians and also higher share of medicine in healthcare expenditures of the rural areas because of their lower demand for some other services such as dental services. Graph 9 depicts share of pharmaceuticals in out-of-pocket expenditures by urban and rural households.

Graph 9- Share of Pharmaceuticals in Out-of-pocket Expenditures by Urban and Rural Households



Source: National Institute of Health Researches of Iran

4- Ownership Structure of the Iranian Pharmaceutical Industry

On the basis of the latest data by the IFDA, there existed 307 pharmaceutical suppliers and 43 distributors in the domestic market in 1401 (2022). Note that the data regarding the suppliers solely covers those of human medicines, i.e., animal medicine producers, distributors, packaging, herbals, and raw material producers are not included. The Iranian Social Security Organization (ISSO), Bank Melli, and the Execution of Imam Khomeini's Order (EIKO also known as Setad) are the major owners of most of the pharmaceutical producers with sizeable market shares. The largest pharmaceutical holding (ISSO) is owned by the public sector and the second largest one is owned by the private sector.

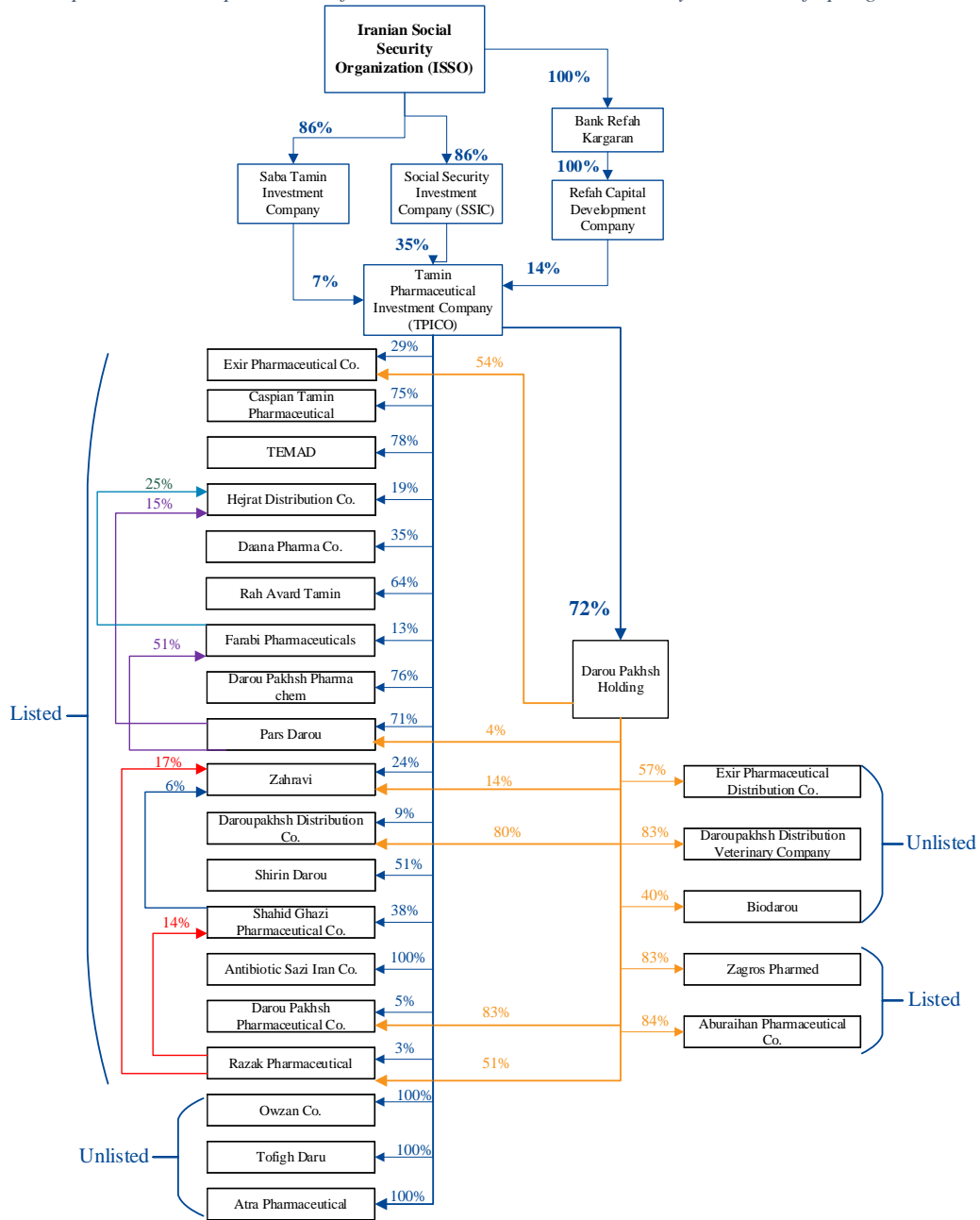
4-1- Iranian Social Security Organization (ISSO)

The ISSO has a considerable control on the largest pharmaceutical holding of the country, Tamin Pharmaceutical Investment Company (TPICO) via its investment company, Social Security Investment Company (SSIC). The TPICO was established in 2003, aiming for production, imports, and exports of raw materials, medicine, cosmetics, medical equipment, and biological products under the affiliation of the SSIC. The TPICO as a holding, is active in all parts of the pharmaceuticals value chain and is the largest exporter of pharmaceuticals in Iran. In 1401 (2022), about 4.0 percent of the total investment of SSIC has been in shares of pharmaceutical companies. Graph 10 depicts the ownership structure of ISSO in the Iranian pharmaceutical industry.

Refah capital Development Investment Company owns 14 percent of the TPICO shares. Saba Tamin Investment Company is a subsidiary of Refah Bank. On the other hand, the ISSO with its subsidiaries hold 100 percent of the Refah Bank. SSIC is the largest investment holding in Iran with more than 200 subsidiaries and the asset value of IRR2,050 trillion. About 86 percent of the shares of SSIC is owned by

the ISSO and besides 35 percent of the share of TPICO is owned by the SSIC. Given that the ISSO owns 86 percent of the shares of Saba Tamin Investment Company, it is indirectly holder of 56 percent of the shares of TPICO, the largest pharmaceutical investment holding in Iran. TPICO is the owner of 72 percent of the shares of Darou Pakhsh Holding. TPICO with its subsidiary Darou Pakhsh hold a considerable ownership of 24 pharmaceutical companies in Iran. Out of those 24 companies, 19 are producers and the 5 remaining are distributors of the pharmaceutical products. Atra Pharmaceutical, Tofigh Daru, Owzan, Biodarou, Exir Distribution, and Darou Pakhsh Distribution of Veterinary medicine are the unlisted pharmaceutical companies. Accordingly, The ISSO is referred to as the major owner of the Iranian pharmaceutical companies. The National Investment Company of Iran owns 17 percent of the shares of the Darou Pakhsh Holding. The National Investment Company on the other hand is owned by Tejarat Bank (42 percent of shares), Saderat Bank (5 percent of shares) and “Melli Bank and Merged Banks pension fund” (34 percent of shares). Consequently, some banks and the aforementioned pension fund are also indirectly owners of the TPICO.

Graph 10- Ownership Structure of the ISSO in Pharmaceutical Industry at the End of Spring 1402*



Source: Interim financial statements of spring 1402; Daana Pharma Co. Valuation Report; Official Newspaper

* The numbers on each arrow indicate the ownership percentage of each company in its subsidiaries.

4-2- Execution of Imam Khomeini's Order (EIKO)

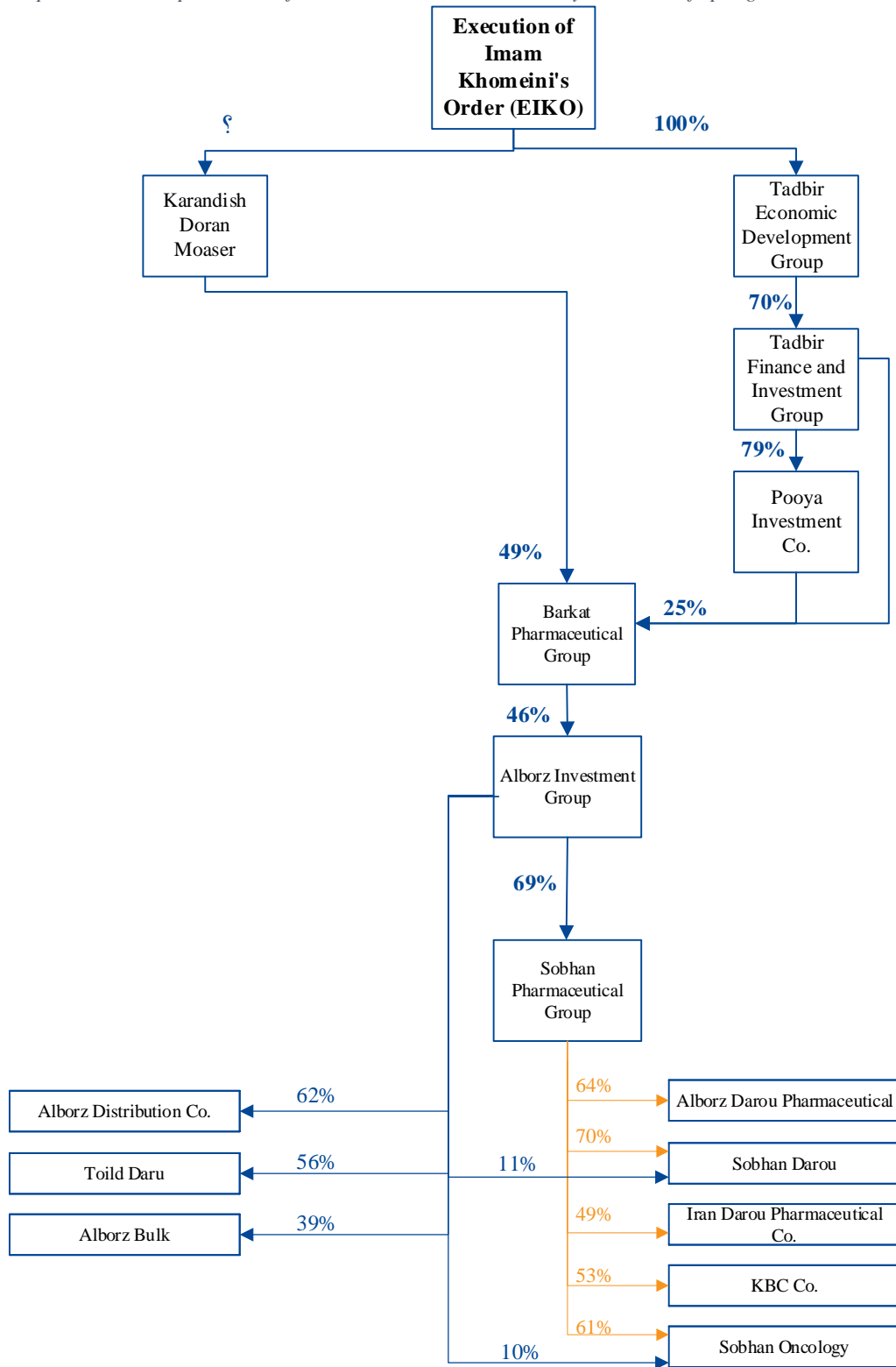
This organization (also known as Setad) was founded in 1368 (1989) in order to control the confiscated properties¹¹ in the aftermath of the Islamic Revolution of 1357 (1979). Due to the accumulation of properties of that organization, Tadbir Economic Development Group was established in 1378 (1999) in order to manage those properties under the supervision of the Setad. The new Group was in charge of the economic activities of the Setad and was based in Tehran. The Group classified its investments into various types which resulted in the formation of eight specialized holdings in fields of Energy, Construction, Pharmaceuticals, Financial, Information and Communication Technology, Agriculture and Animal Husbandry, Management and Contracting Consultation. According to a report by Reuters, the asset value of the Setad in 2013 totaled USD95 billion¹². The Setad is owner of Barkat Pharmaceutical Group directly via Karandish Doran Moaser company and indirectly via Tadbir Economic Development Group. In Graph 11 the ownership structure of the Setad in Barkat Pharmaceutical Group is shown. Note that as no data was available regarding Karandish Doran Moaser company, the share of Setad in that company is unknown and hence is shown by a question mark. All in all, the Setad indirectly owns 74 percent of the Shares of Barkat Pharmaceutical Group.

At the end of spring 1402 (June 2023), Barkat Pharmaceutical Group owned 49 percent of the Alborz Investment Holding in total, directly and indirectly. National Investment Company of Iran with 13 percent, Central Insurance of Iran with 5 percent, and Parsian Financial Group with 3 percent share were the other shareholders of Alborz Investment Holding. Out of 6 board members of Alborz Holding, 5 are agents of the legal entities under the affiliation of Setad. Alborz Investment Holding directly owns Alborz Distribution company, Tolid Daru, and Alborz Bulk Pharmaceutical Group. Besides, Alborz Investment Holding is directly holder of 69 percent of the shares of Sobhan Pharma Group.

11-Toliddaru, Alborz Distribution, and Sobhan Darou companies are as such.

12- <https://www.reuters.com/investigates/iran/#article/part1>

Graph 11- Ownership Structure of Setad in Pharmaceutical Industry at the End of Spring 1402*



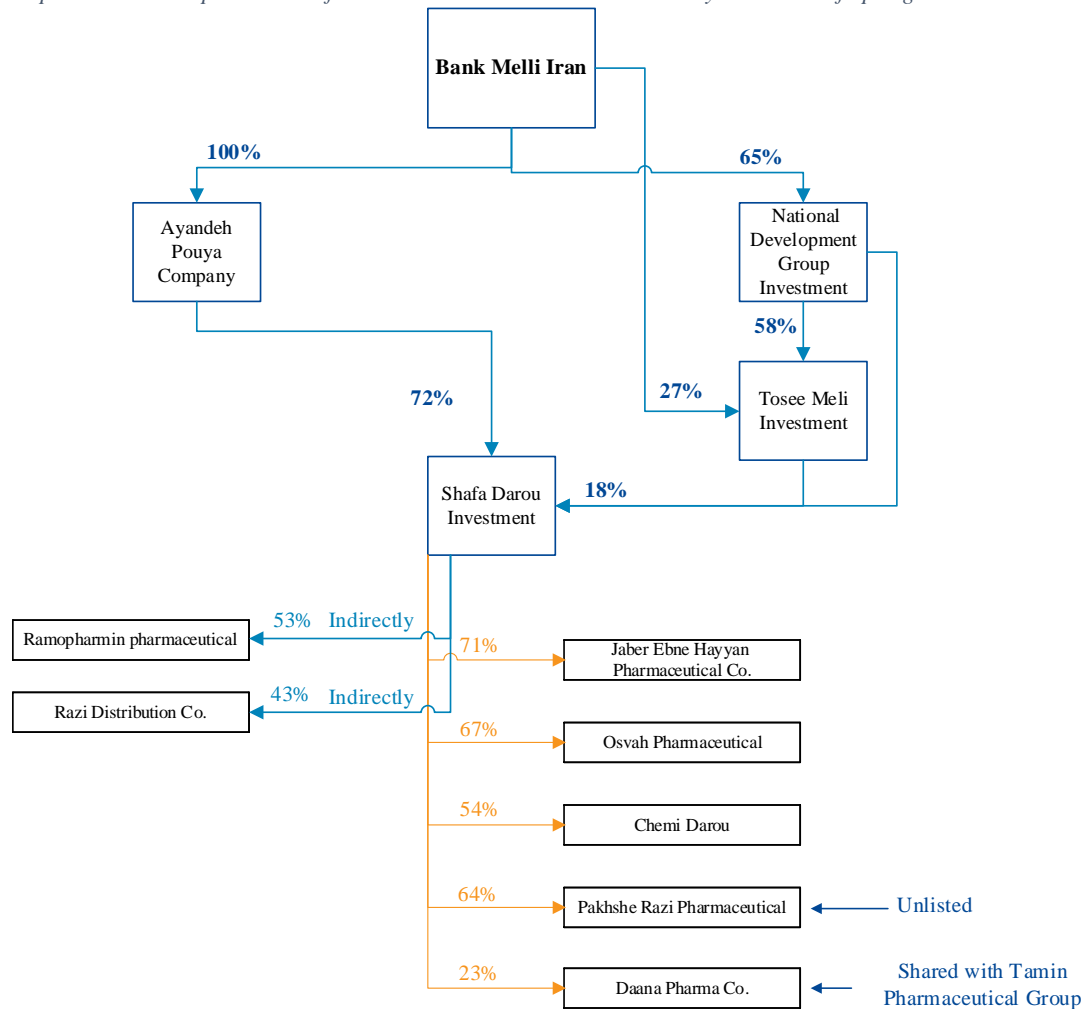
Source: Interim financial statements of spring 1402; Daana Pharma Co. Valuation Report; Official Newspaper

* The numbers on each arrow indicate the ownership percentage of each company in its subsidiaries.

4-3- Bank Melli Iran

Bank Melli is indirectly owner of 72 percent of the shares of Shafa Darou Investment Company through Ayandeh Pouya Plan and Development Management Company. The Bank on the other hand owns 65 percent of the shares of the National Development Group Investment Company and 14 percent of the shares of Shafa Darou belongs to this group. Tosee Meli Investment Company is another shareholder of Shafa Darou with 4 percent share, and on the other hand, 27 percent of its shares is held directly by Bank Melli and 57 percent is held by National Development Group Investment Company. Accordingly, Ayandeh Pouya Plan and Development Management Co., Tosee Meli Investment Company, and National Development Group Investment Company that hold 90 percent of Shafa Darou shares altogether are subsidiaries of Bank Melli. Jaber Ebne Hayyan Pharmaceutical Co., Chemidarou Co., and Osvah Pharmaceutical Co. as well as Razi Distribution Co. (unlisted) belong to the Shafa Darou holding. Tamin Pharmaceutical Group and Shafa Darou holding own 35 percent and 23 percent of the shares of Daana Pharma Co., respectively. Additionally, Shafa Darou holding is indirectly owner of Razi Distribution Company and Ramopharmin Pharmaceutical Company.

Graph 12- Ownership Structure of Bank Melli in Pharmaceutical Industry at the End of Spring 1402*



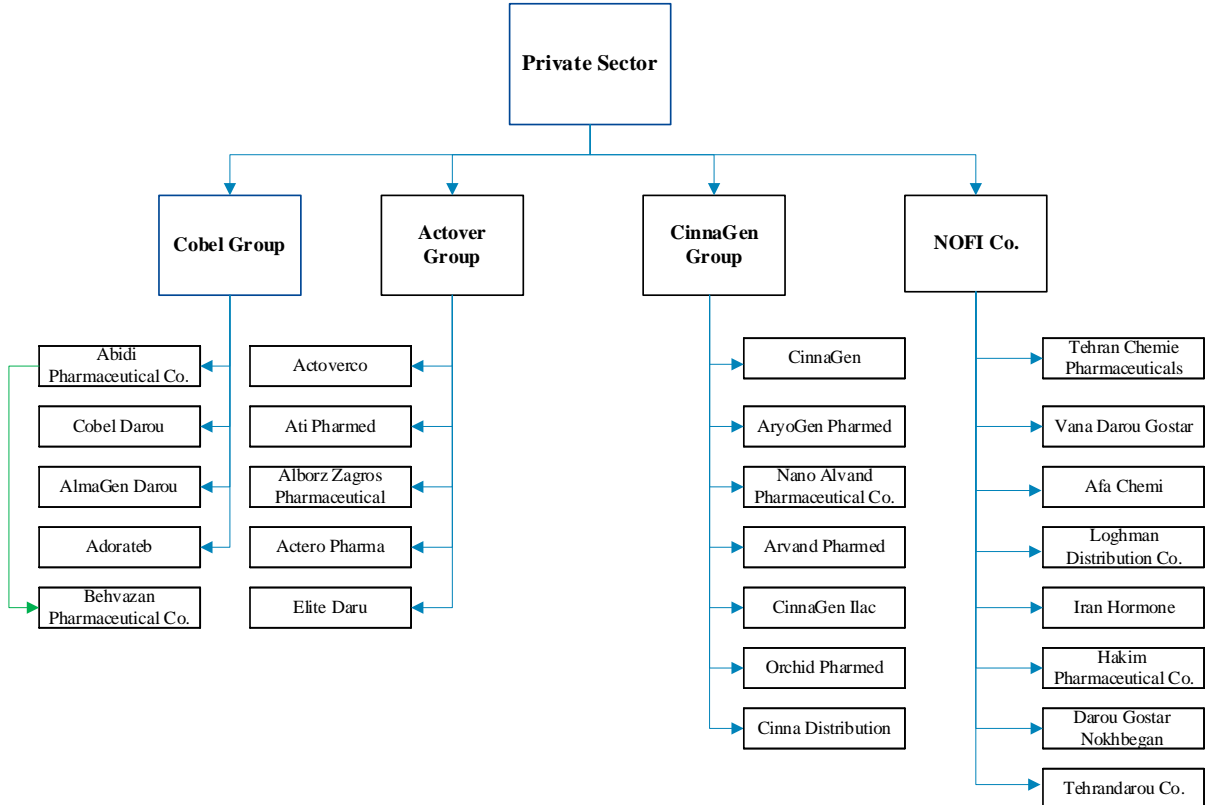
Source: Interim financial statements of spring 1402; Daana Pharma Co. Valuation Report; Official Newspaper

* The numbers on each arrow indicate the ownership percentage of each company in its subsidiaries.

4-4- Private Sector

The private sector has become an important player in the Iranian pharmaceutical industry and has expanded its market share to the extent that owns the second largest Pharmaceutical Holding i.e., Cobel Darou Group. In Graph 13 the largest private pharmaceutical holdings with their subsidiaries are shown.

Graph 13- Ownership Structure of Large Private Holdings in Pharmaceutical Industry at the End of Spring 1402*



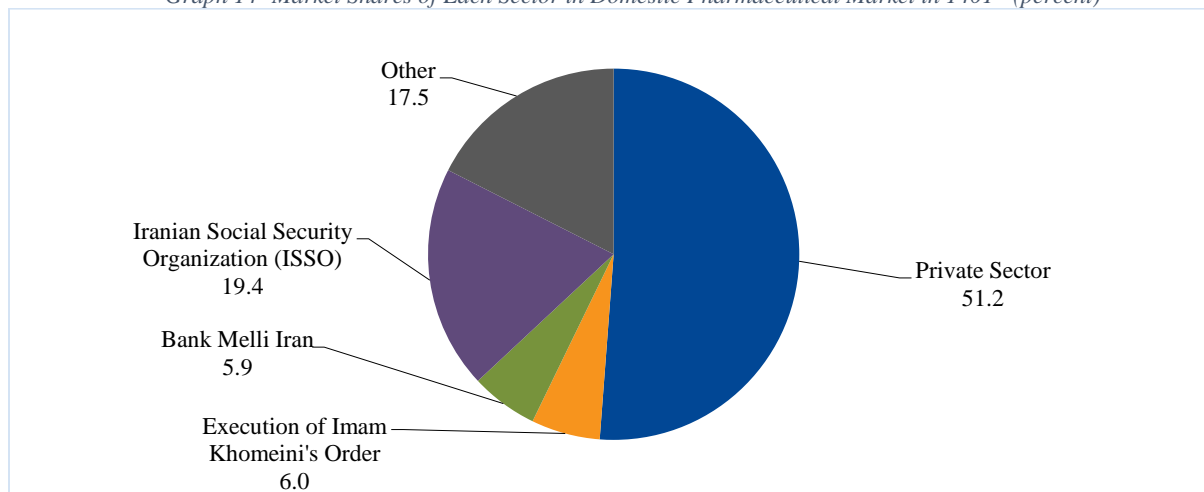
Source: Interim financial statements of spring 1402; Daana Pharma Co. Valuation Report; Official Newspaper

* The numbers on each arrow indicate the ownership percentage of each company in its subsidiaries.

5- Market Share of Public and Private Sectors in Iranian Pharmaceutical Market

The market share of ISSO, Setad, and Bank Melli in 1401, respectively, registered 19.4 percent, 6.0 percent, and 5.9 percent of the domestic market for pharmaceuticals. The private sector share (only large companies) in the same market reached about 51.2 percent in 1401. Note that the remaining 17.5 percent of market share belongs to the other companies, among those, most are private SMEs. Hence, it could be inferred that market share of the private sector in 1401 exceeded 60 percent in the domestic market for pharmaceuticals.

Graph 14- Market Shares of Each Sector in Domestic Pharmaceutical Market in 1401* (percent)



Source: Food and Drug Administration of Iran statistical report of 1401; audited financial statements; research calculations
 * Sales of domestic market includes both domestically produced products and the Imports.

The private pharmaceutical holdings including Cobel Group, Actover Group, Cinna Gen Group, and NOFI Co., altogether had 29.0 percent share in the domestic sales of pharmaceutical products in 1401, shown in Table 3.

Table 3- Market Share of Private Holdings in 1401

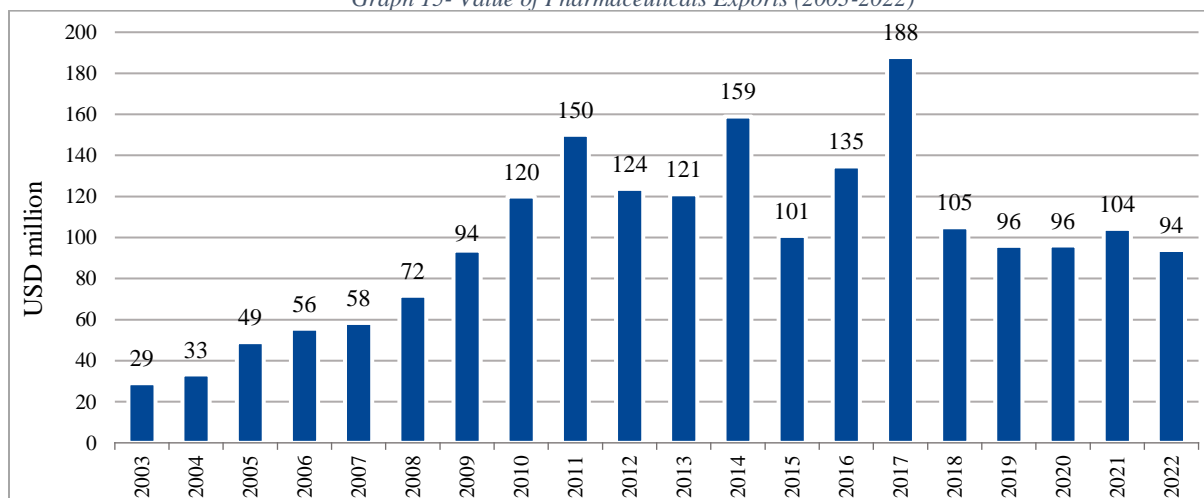
Pharmaceutical Holding	Market Share in Total (percent)	Market Share in Private Sector (percent)
Cobel Group	9.6	18.8
Actover Group	6.0	11.8
Cinna Gen Group	6.5	12.7
NOFI Co.	6.9	13.6
Other Private Companies	22.2	43.1
Total	51.2	100.0

Source: Food and Drug Administration of Iran statistical report of 1401; audited financial statements; research calculations

6- Exports of Pharmaceuticals

According to Graph 15, the Iranian exports of pharmaceuticals that registered USD29 million in 2003, grew by annual rate of 3.0 percent on average to reach USD94 million in 2022.

Graph 15- Value of Pharmaceuticals Exports (2003-2022)



Source: Trade Map; Islamic Republic of Iran Customs Administration

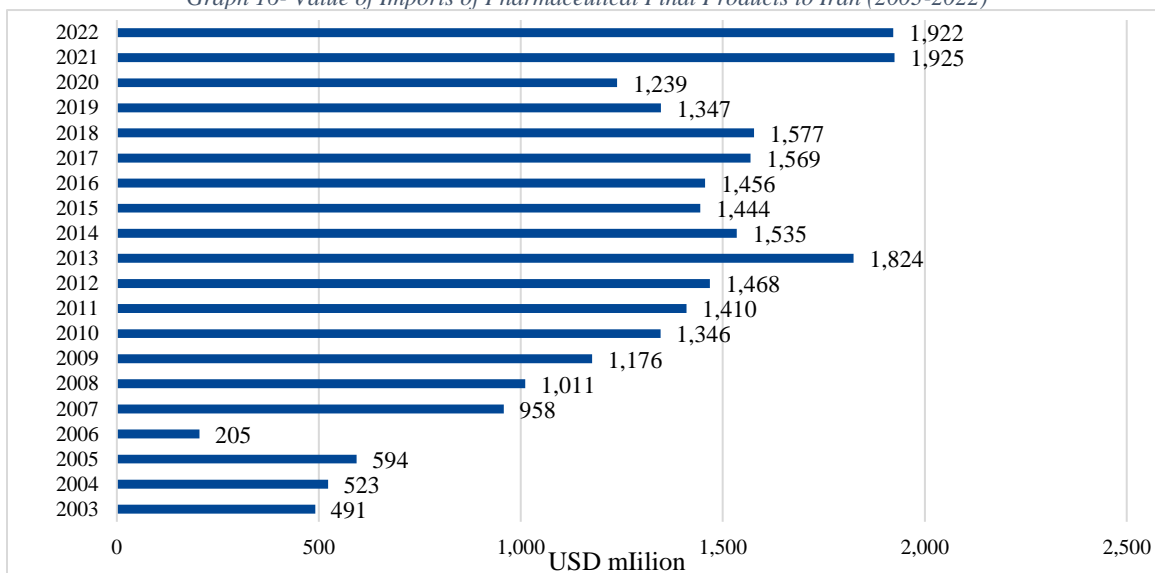
The exports of pharmaceuticals in Iran faces various obstacles. The exports permission from the IFDA is the major issue faced by the exporters of pharmaceuticals. Precisely speaking, the companies are allowed to export only their excess supply, meaning that satisfaction of domestic demand is the priority of the IFDA. On the other hand, as the Iranian pharmaceutical industry is highly subject to price control and Inefficient bureaucratic structure of allocating foreign currencies, the supply of pharmaceuticals is facing a shortage in most cases. All in all, such policies and requirements would end up in loosing foreign markets for pharmaceutical products.

7- Imports of Pharmaceuticals

7-1- Imports of Final Products

The pharmaceutical industry is highly dependent on the innovation, investment, as well as government regulations. The pharmaceutical producers are considered as businesses with high profit margin and their profitability varies based on their technology and what they produce. Additionally, the production costs of pharmaceuticals mainly include cost of raw materials, technology, as well as the exclusive formulation of the medicine production. Note that as the production knowledge of some specific raw materials is limited to a handful of companies with exclusive rights of production, provision of raw materials and formulation of pharmaceuticals could be so expensive. Regarding the Iranian producers and the imports-oriented products, monopolies as well as changes in foreign exchange rates are considered as major drivers of the production costs. As shown in Graph 16, the value of imports of pharmaceuticals to Iran from USD491 million in 2003 reached USD1.9 billion in 2022 with an average annual growth rate of 7.7 percent.

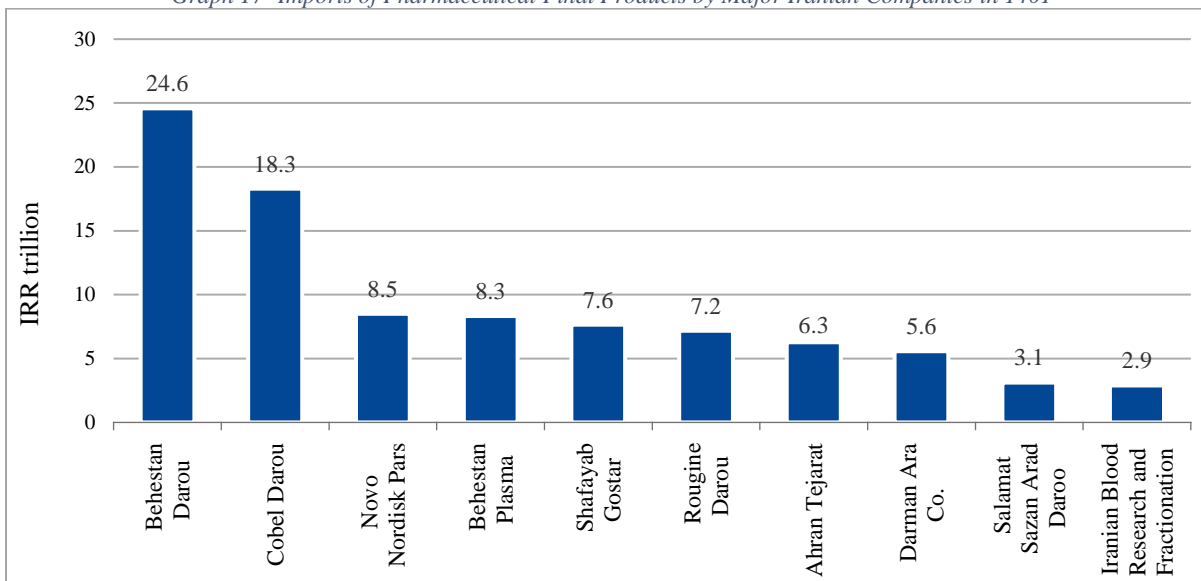
Graph 16- Value of Imports of Pharmaceutical Final Products to Iran (2003-2022)



Source: Trade Map; Islamic Republic of Iran Customs Administration

According to the pharmaceuticals database, the imports value of pharmaceuticals that registered IRR80.3 trillion in 1400 rose to IRR138.5 trillion in 1401, indicating 72.5 percent growth rate. This rise in value of imports is originated in the rise in domestic prices of imported products as their imports value in USD in 2021 and 2022 did not change. The share of imported products in total sales of pharmaceuticals registered 0.9 percent in terms of unit and 13.0 percent in terms of IRR value in 1401. Precisely speaking, the price of each unit of imported medicine in 1401 was 16 times that of the domestic medicine. Among Iranian producers, Behestan Pharmaceutical Company with IRR24.6 trillion of imports ranked as the first importer of the pharmaceuticals in 1401.

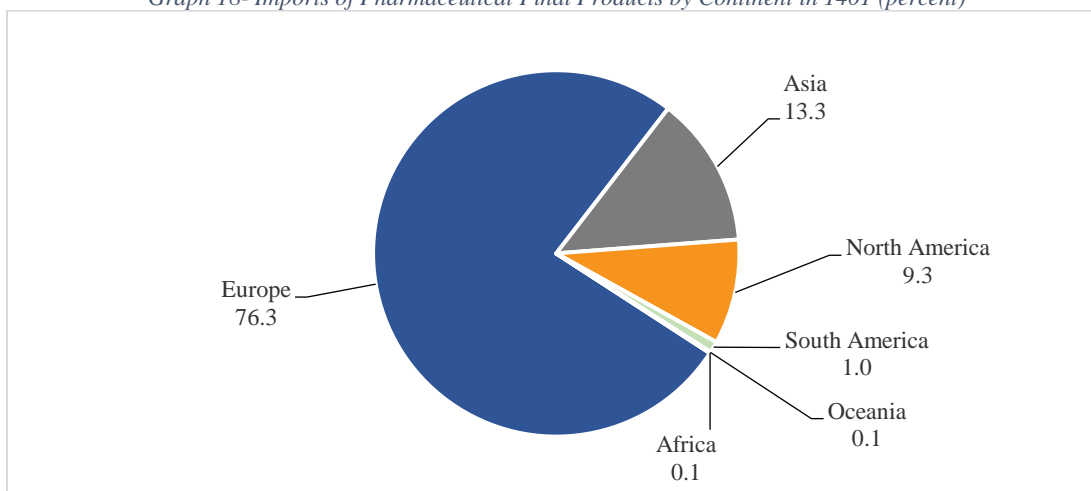
Graph 17- Imports of Pharmaceutical Final Products by Major Iranian Companies in 1401



Source: Pharmaceutical database 1401 (according to distribution companies)

In 1401, among the continents, Europe constituted the high of 76.3 percent of value of the imports of the pharmaceuticals to Iran while Africa had the lowest share in that regard. Share of imports of pharmaceuticals from Europe and the North America in 1401 grew by 8.0 percentage points and 2.8 percentage points, respectively, compared to its preceding year. On the contrary, Asia and South America have respectively, lost 5.7 percentage points and 6.0 percentage points of their share in Iranian imports of pharmaceuticals in 1401 from 1400.

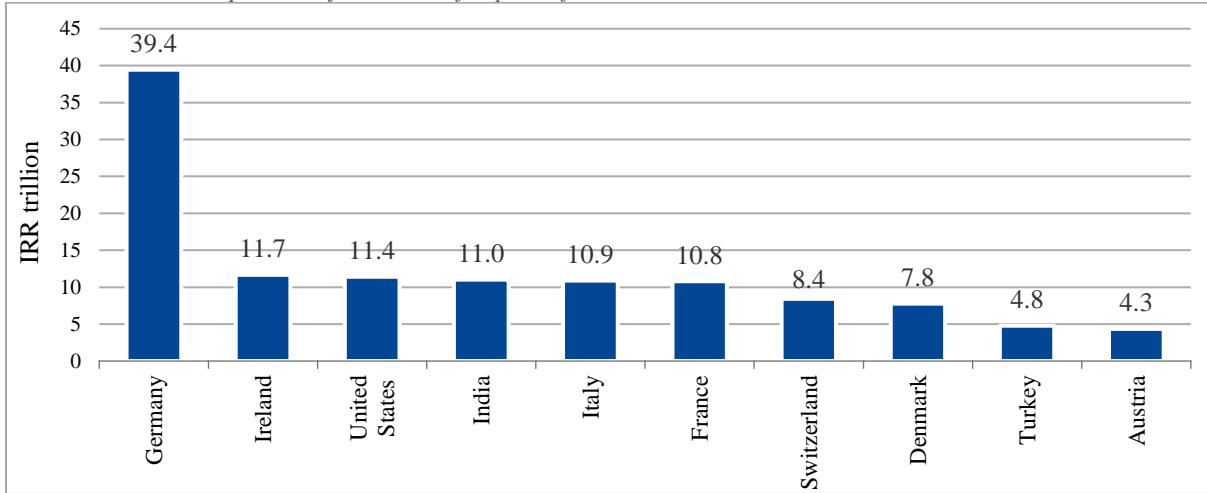
Graph 18- Imports of Pharmaceutical Final Products by Continent in 1401 (percent)



Source: Pharmaceutical database 1401 (according to distribution companies)

Germany with IRR39.4 trillion in 1401 was the major source of imports of pharmaceuticals to Iran in 1401. This amount shows a remarkable 124.2 percent growth from 1400.

Graph 19- Major Sources of Imports of Pharmaceutical Final Products to Iran in 1401

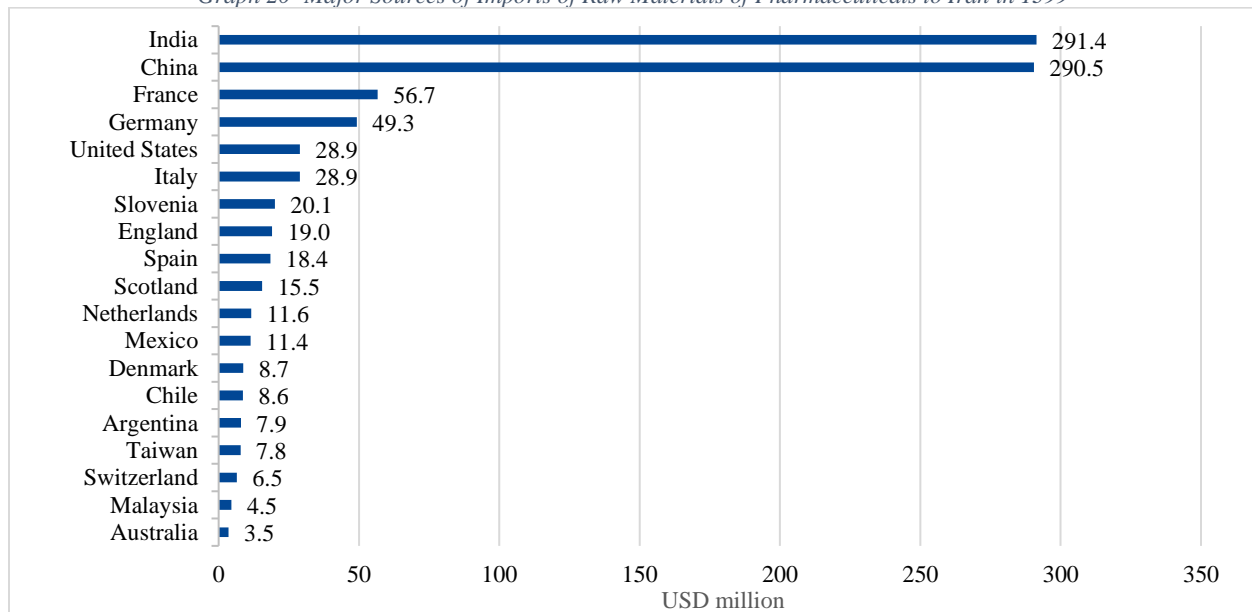


Source: Pharmaceutical database 1401 (according to distribution companies)

7-2- Imports of Raw Materials

In terms of IRR, 77 percent of the raw materials aiming for production of pharmaceuticals is provided via imports, i.e., the country is highly dependent on the imports of raw materials than on the imports of final products. According to the Parliament Research Center, in 1399, in terms of volume 25.1 percent and in terms of IRR value only 23.1 percent of the demand for raw materials and packaging materials have been domestically satisfied, far below the 71 percent released by the Iran’s API and Pharmaceutical Packaging Syndicate. As shown in Graph 20, the value of imports of raw materials of pharmaceuticals registered USD925 million in 1399, out of which USD582 million was from India and China equivalent to 63.0 percent of value imports. This high market share alarms high risk of concentration in the imports of raw materials.

Graph 20- Major Sources of Imports of Raw Materials of Pharmaceuticals to Iran in 1399



Source: Food and Drug Organization of Iran

8- Listed Domestic Pharmaceutical Producers

The Iranian pharmaceutical industry with 307 active companies is considered as a major driver of economic development and welfare in the country. In 1401, according to the pharmaceutical database, the sales value of pharmaceuticals reached IRR1,221 trillion, out of which IRR164 trillion was attributed to the sales of imported products and the remaining IRR1,058 trillion to the sales of the domestically produced pharmaceuticals. By the end of 1401, 33 pharmaceutical companies were listed on Tehran Stock Exchange (TSE) and Over the Counter (OTC), shown in Table 4. The total sales of the 33 listed companies on the basis of their audited financial statements registered IRR408.5 trillion in 1401. In the succeeding chapters, the listed companies are explored from various aspects.

Table 4- Companies Listed on TSE and OTC

	Company		Company
1	Avi Cenna	18	Shahid Ghazi Pharmaceutical Co.
2	Rouz Darou	19	Tehran Chemie Pharmaceuticals
3	Alborz Bulk	20	Zahravi
4	Rah Avard Tamin	21	Sinadarou Labs Company
5	Loghman Pharma	22	Farabi Pharmaceuticals
6	Toild Daru	23	Sobhan Darou
7	Cosar Pharmaceutical Company	24	Caspian Tamin Pharmaceutical
8	Antibiotic Sazi Iran Co	25	TEMAD
9	Gelatin Capsule Iran Company	26	Razak Pharmaceutical
10	Zagros Pharmed	27	Aburaihan Pharmaceutical Co
11	Darou Pakhsh Pharmachem	28	Alborz Darou Pharmaceutical
12	Chemi Darou	29	Daana Pharma Co
13	Jaber Ebne Hayyan Pharmaceutical Co	30	Exir Pharmaceutical Co
14	Iranian Parenteral and Pharmaceutical Company (I.P.P.C)	31	Abidi Pharmaceutical Co
15	Amin Chemical and Pharmaceutical Co	32	Darou Pakhsh Pharmaceutical Co
16	Pars Darou	33	Iran Darou Pharmaceutical Co
17	Tehrandarou Co		

Source: Securities and Exchange Organization of Iran

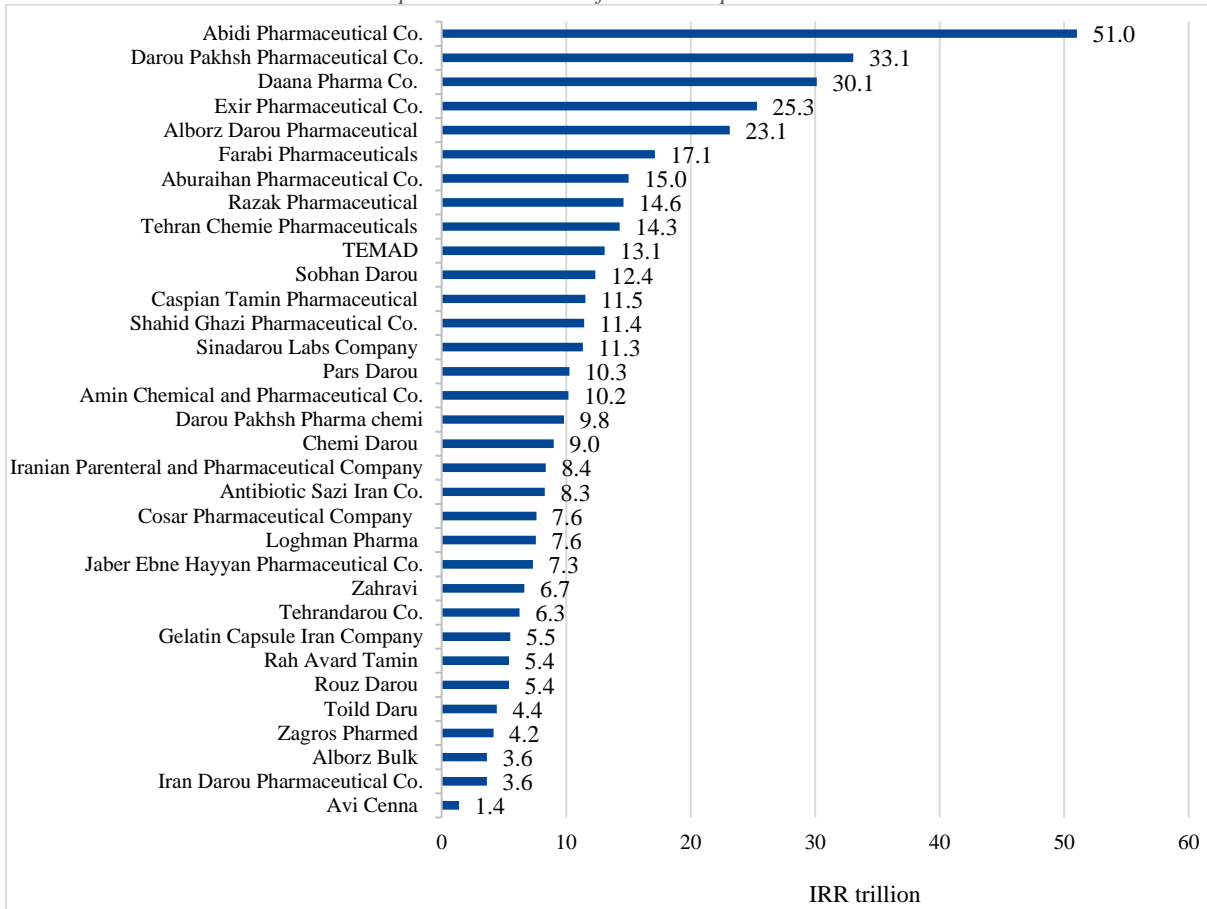
9- Sales Value of Listed Pharmaceutical Companies

9-1- Sales Value and Its Growth Rate in 1401

The sales of the 33 listed pharmaceutical producers from IRR250.1 trillion in 1400 grew by 63.3 percent to reach IRR408.5 trillion in 1401¹³. Abidi Pharmaceuticals Co. had the highest sales value of IRR51.0 trillion and Avi Cenna had the lowest of IRR1.4 trillion in 1401. The sales values of the listed companies are shown in Graph 21.

13 - As the fiscal year of some companies is not ending in the last day of Persian Calendar, for consistency of analyses, their interim financial statements have been used.

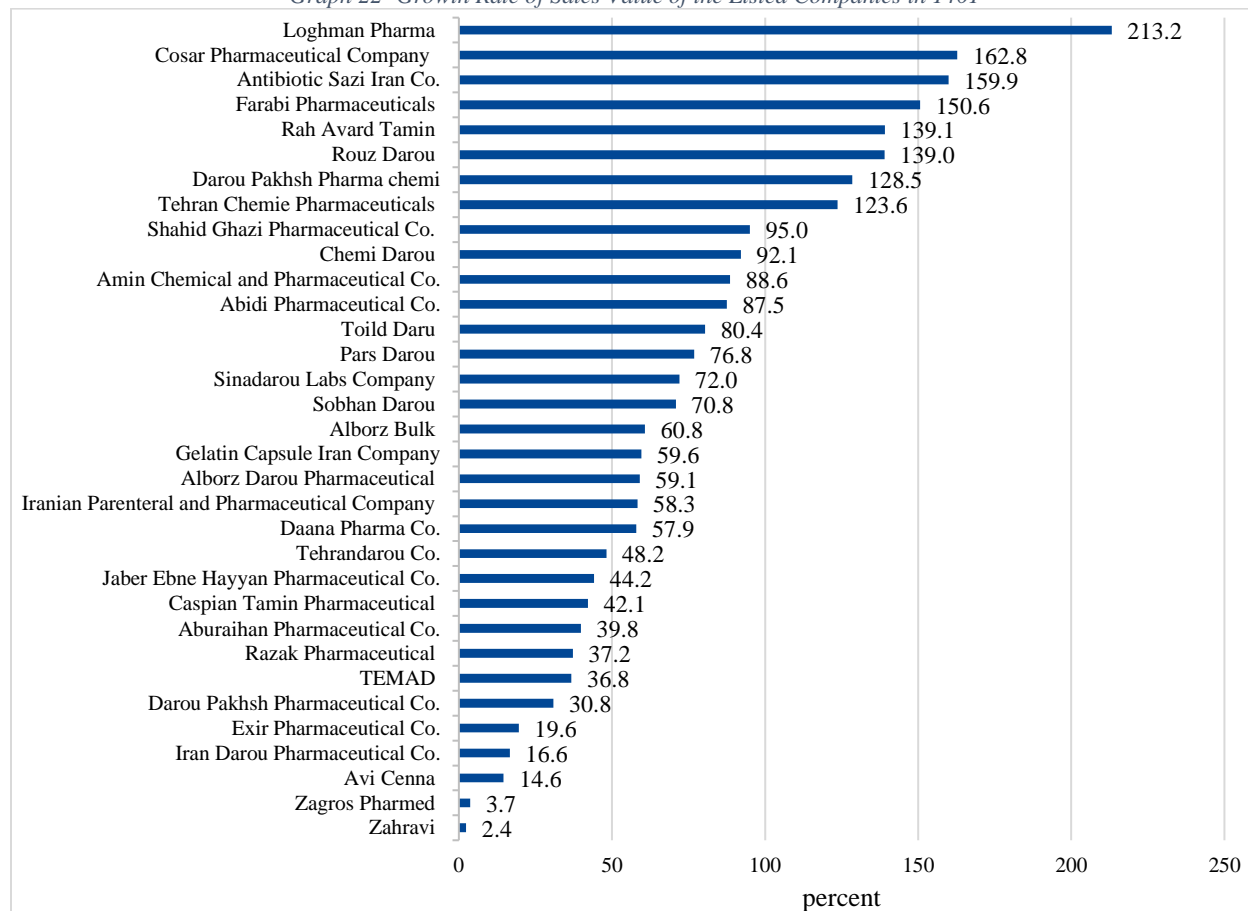
Graph 21- Sales Value of Listed Companies in 1401



Source: audited financial statements of the listed companies

Among the listed companies, the highest growth in sales value belongs to Loghman Pharma Company with 213.2 percent, while Zahravi Company had the lowest of 2.4 percent. Note that the rise in prices of the products of Loghman Company has been the main driver of the considerable rise in its sales value. The prices of its products show an annual average growth of 149.2 percent in 1401 compared to its preceding year.

Graph 22- Growth Rate of Sales Value of the Listed Companies in 1401



Source: audited financial statements of the listed companies

9-2- Sales Value and Its Growth Rate in 1402

The sales value of the listed companies has experienced 75.5 percent growth rate to reach IRR261.0 trillion in 1402H1 compared to the IRR148.7 trillion in 1401H1. In 1402H1, Cosar Company had the highest rise in sales value at 298.2 percent and Aburaihan Pharmaceutical Company had the lowest of 0.3 percent compared to the same period of 1401. It is worth to mention that the rise in price of the products has been the main driver of the surge in sales value of companies such as Cosar. On the basis of the financial reports issued by the listed pharmaceutical producers as well as the price changes of their products, it is forecasted that the sales value of those companies in 1402 stand 46 percent above that in 1401.

Table 5- Sales Values of Listed Pharmaceutical Companies in 1402H1 and Forecast of 1402H2*

Company	Sales in		Growth of 1402H1 to 1401H1 (percent)	Forecasted Sales Value for 1402H2 (IRR trillion)	Forecasted Sales Growth Rate in 1402 from 1401 (percent)
	1401H1 (IRR trillion)	1402H1 (IRR trillion)			
Abidi	19.7	31.3	59.1	37.2	34.3
Daana	11.3	26.7	136.1	20.2	55.5
Darou Paksh Pharmaceutical	14.8	22.8	54.5	23.5	39.8
Exir	11.9	19.7	66.5	20.0	56.8
Alborz	10.5	16.2	53.9	16.5	41.5
Farabi Pharmaceuticals	4.5	11.5	157.0	11.7	35.1
Sobhan	4.9	10.0	104.1	11.1	70.6
TEMAD	5.9	8.2	38.4	10.1	39.9
Caspian Tamin Pharmaceutical	5.9	8.1	37.8	8.0	39.6
Sinadarou Labs	3.5	7.9	123.8	10.2	60.5
Jaber Ebne Hayyan Pharmaceutical	3.2	7.8	145.8	3.8	57.6
Darou Paksh Pharma Chem	2.7	7.5	181.1	8.3	60.2
Shahid Ghazi Pharmaceutical	5.4	7.4	36.8	8.1	35.3
Aburaihan Pharmaceutical	7.1	7.2	0.3	13.5	37.6
Pars Darou	4.1	6.9	71.0	7.1	36.4
Amin Chemical and Pharmaceutical	3.9	6.7	71.3	6.8	31.9
Cosar	1.6	6.5	298.2	4.2	41.1
Loghman Pharma	2.1	6.1	178.8	10.3	116.9
Chemi Darou	3.4	5.2	51.5	5.7	21.2
Iranian Parenteral and Pharmaceutical	3.5	5.1	43.3	4.9	19.4
Rouz Darou	1.8	4.2	130.0	4.8	66.1
Zagros Pharmed	2.1	4.1	95.4	3.2	76.4
Rah Avard Tamin	1.8	3.9	117.9	2.4	15.5
Gelatin Capsule Iran	2.9	3.7	27.8	3.1	22.3
Antibiotic Sazi Iran	1.9	3.6	87.5	10.5	70.6
Zahravi	3.3	3.3	0.8	6.0	40.0
Alborz Bulk	1.1	3.1	178.7	4.9	120.3
Toild Daru	1.8	2.9	61.3	3.0	31.6
Iran Darou Pharmaceutical	1.6	2.7	72.4	3.2	64.3
Avi Cenna	0.5	0.7	43.3	1.3	47.1
Total	148.7	261.0	75.5	283.4	45.9

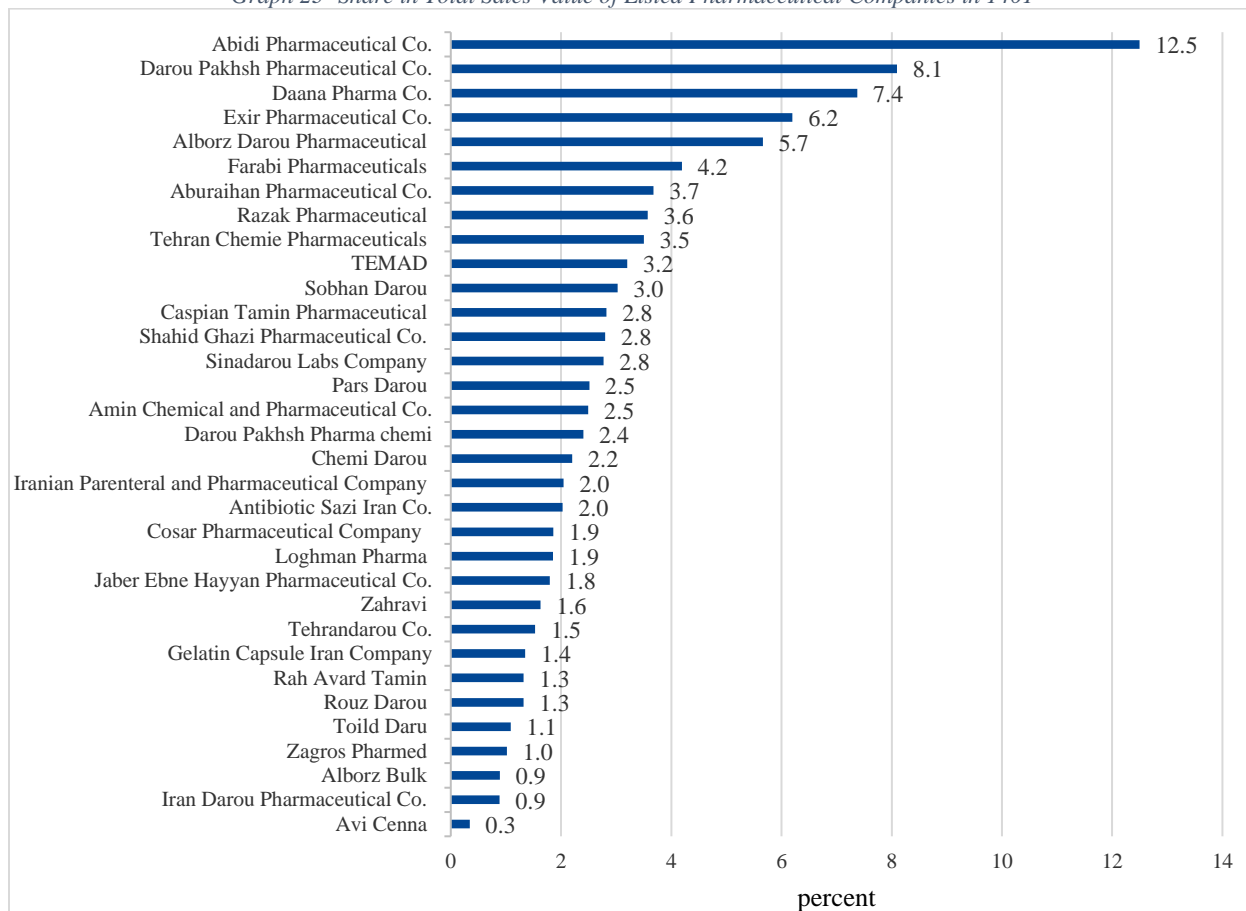
Source: audited financial statements of the listed companies

* As the sales statistics of 3 companies were not released while preparation of this Report, the forecasts in their interim financial statements have been used in calculations.

9-3- Share in Sales Value of the Listed Pharmaceutical Companies

As shown in Graph 23, in 1401 Abidi company had the highest share in the total sales value of pharmaceutical listed companies at 12.5 percent, while the lowest share of 0.3 percent belonged to Avi Cenna. Note that the share of Abidi company in 1401 shows 1.6 percentage points rise from 1400 which is mainly originated in the establishment of a new line of production in 1401. The new line of production has the capacity of production of 75 million medicine boxes a year and has caused the production capacity of Abidi company to expand to 190 million medicine boxes in a year.

Graph 23- Share in Total Sales Value of Listed Pharmaceutical Companies in 1401

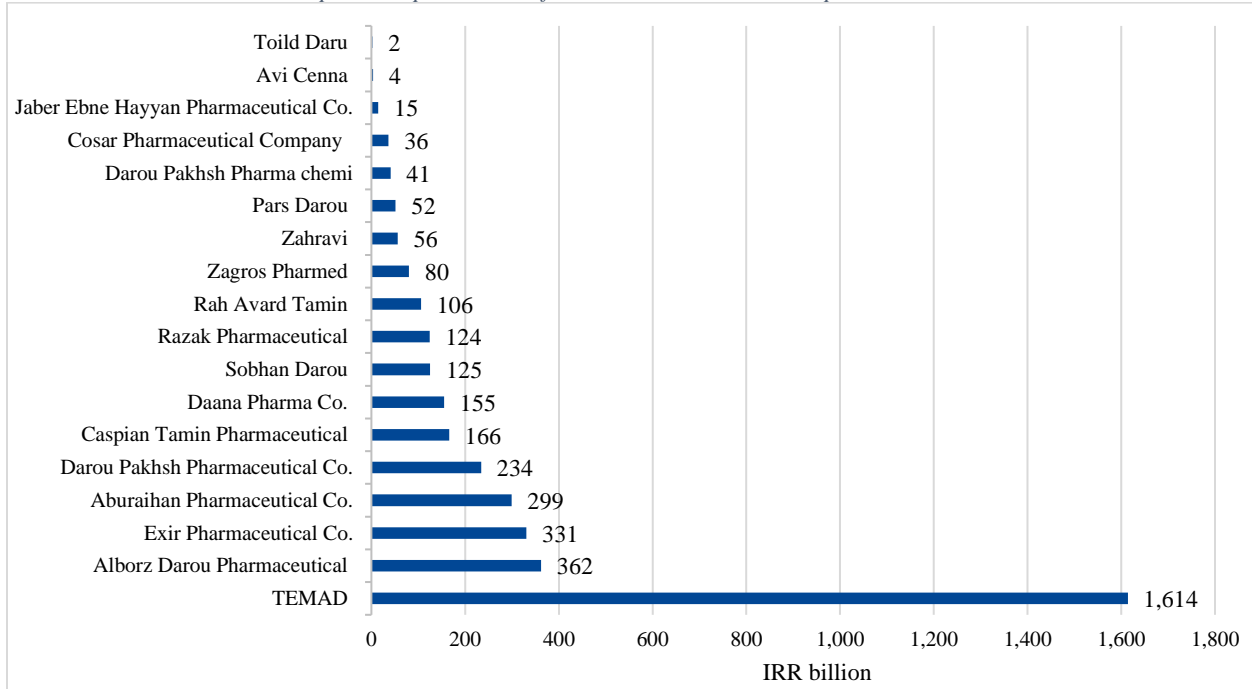


Source: audited financial statements of the listed companies

10- Exports of the Listed Pharmaceutical Companies

The total exports value of the listed pharmaceutical companies registered IRR3,802 billion in 1401, indicating 1.6 percent drop from IRR3,863 billion in 1400. TEMAD with IRR1,614 billion of exports ranked as first among listed pharmaceutical companies with 42.4 percent share, while 15 companies did not have any exports in 1401. The exports value of listed companies is illustrated in Graph 24.

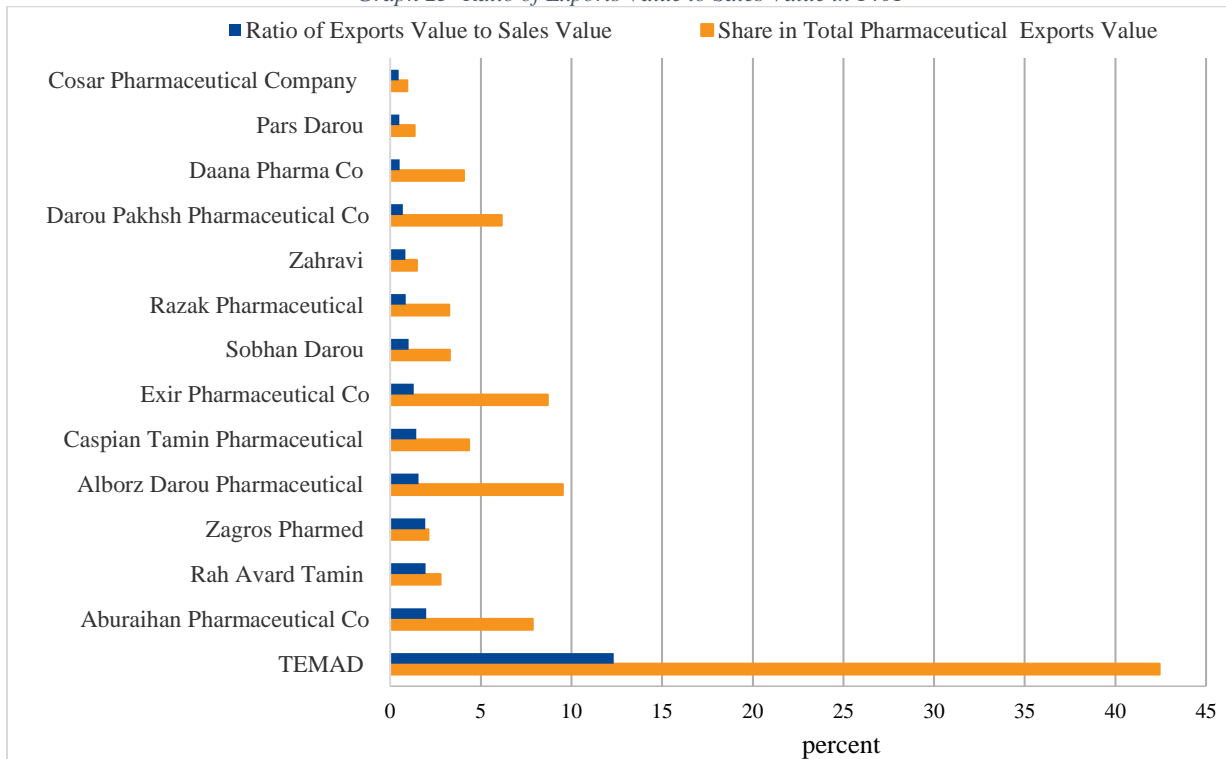
Graph 24- Exports Value of Listed Pharmaceutical Companies in 1401*



Source: audited financial statements of the listed companies
 * Out of 33 companies, 15 did not have any exports in 1401.

In terms of the ratio of exports value to sale value, TEMAD had the highest ratio at 12.3 percent. Graph 25 demonstrates this ratio for each listed company.

Graph 25- Ratio of Exports Value to Sales Value in 1401



Source: audited financial statements of the listed companies

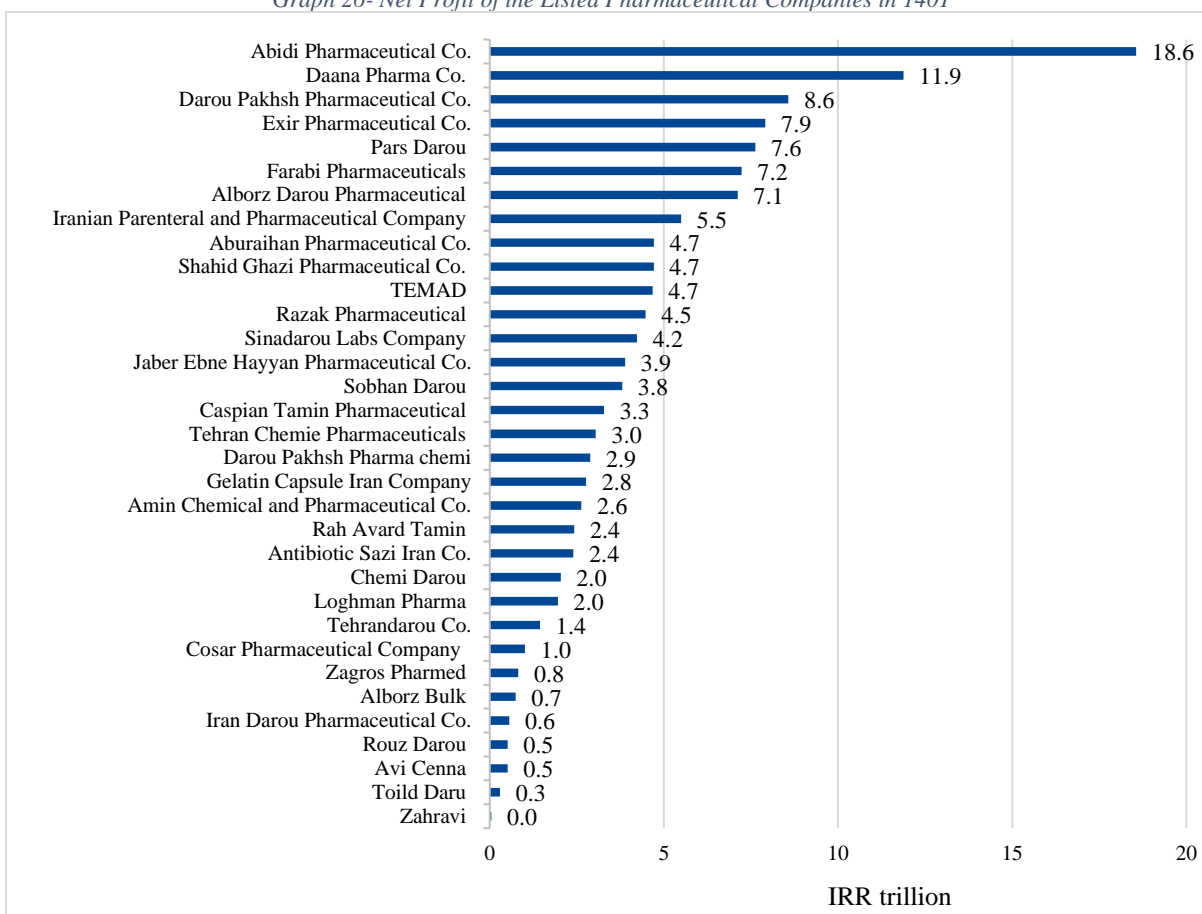
Given the IRR3,802 billion of exports value and IRR408,455 billion of sales value of the 33 listed companies, the ratio of the exports value to sales value of the listed companies in total reached 0.9 percent in 1401, 0.6 percentage point below that in 1400.

11- Net Profit and Net Profit Margin of the Listed Pharmaceutical Companies

11-1- Net Profit of the Listed Companies

The total net profit of the 33 listed companies that registered IRR80.0 trillion in 1400, amounted to IRR134.3 trillion in 1401, showing 67.6 percent rise. In 1401 fiscal year, Abidi company has made a remarkable profit of IRR18.6 trillion, up 137.1 percent from the IRR7.8 trillion in 1400 and registering the highest net profit in 1401 among the listed companies.

Graph 26- Net Profit of the Listed Pharmaceutical Companies in 1401



Source: audited financial statements of the listed companies

11-2- Net Profit Growth of the Listed Pharmaceutical Companies in 1401

Among the listed companies, Cosar with positive 1,728.9 percent and Zahravi with negative 93.8 percent had respectively, the highest and the lowest net profit growth rates in 1401. The remarkable rise in net profit of Cosar in 1401 is attributed to its low net profit in 1400 on the one hand, and considerable rise in prices of its products on the other hand, given that its sales volume shows negligible change compared to 1400.

Table 6- Net Profit Growth Rate of Listed Pharmaceutical Companies in 1401 (percent)

	Company Name	Net Profit Growth Rate		Company Name	Net Profit Growth Rate
1	Zahravi	-93.8	18	Alborz Bulk	76.0
2	Zagros Pharmed	-32.2	19	Darou Pakhsh Pharma chem	90.2
3	Iran Darou Pharmaceutical	-20.9	20	Shahid Ghazi Pharmaceutical	95.3
4	Exir Pharmaceutical	-2.1	21	Gelatin Capsule Iran	96.1
5	Rouz Darou	7.2	22	Sobhan Darou	110.6
6	Razak Pharmaceutical	9.9	23	Pars Darou	135.0
7	TEMAD	14.3	24	Abidi	137.1
8	Chemi Darou	34.7	25	Amin Chemical and Pharmaceutical	137.7
9	Darou Pakhsh Pharmaceutical	38.6	26	Rah Avard Tamin	141.5
10	Daana Pharma	40.5	27	Tehrandarou	161.2
11	Aburaihan Pharmaceutical	40.8	28	Avi Cenna	163.6
12	Caspian Tamin	50.8	29	Antibiotic Sazi Iran	188.0
13	Jaber Ebne Hayyan Pharmaceutical	53.4	30	Farabi Pharmaceuticals	221.5
14	Alborz Darou Pharmaceutical	58.2	31	Toild Daru	592.4
15	Tehran Chemie Pharmaceuticals	105.5	32	Loghman Pharma	905.5
16	Sinadarou Labs	72.3	33	Cosar	1,728.9
17	Iranian Parenteral and Pharmaceutical	72.8			

Source: audited financial statements of the listed companies

In the aftermath of the elimination of the allocation of foreign currencies at USD/IRR official exchange rate of 42,000 aiming for imports of pharmaceutical raw materials in the early 1401 (replaced by the secondary market rate which lays between the official rate and the free market rate), the need for working capital of the pharmaceutical companies skyrocketed and ended up in shortage of production in some of the companies including Zahravi in 1401. Subsequently, as a result of lower production, drop in sales as well as net profit is inevitable especially for companies that had not imported raw material prior to elimination of allocation of foreign currencies at official rates.

11-3- Exchange Rate for Imports and Profitability of the Listed Pharmaceutical Companies

After the implementation of Daruyaar Plan in 1401, the subsidies allocated for imports of raw materials, packaging, and production equipment surged. According to the Plan, the USD exchange rate for imports of pharmaceuticals from IRR42,000 rose to IRR285,000. In the Iranian pharmaceutical industry, the cost of raw materials forms about 75 to 85 percent of the total cost of the production of the final goods and according to the Food and Drug Administration, 77 percent of the raw materials of that industry in 1399 in terms of value has been provided through imports. The price of pharmaceuticals is determined based on summation of costs and profit margin. If a profitability of a company is to remain the same, the price of its product is supposed to move in line with its costs of production. In other words, the gross profit of the company rises once the product price rises at higher pace than the production costs and vice-versa. In order to investigate the effect of foreign exchange rate for imports on the profitability of the pharmaceutical companies, they are classified into two groups¹⁴. The ratio of gross profit to sales for 14 companies, highly dependent on the imports of raw materials, is shown in Table 7. The ratio in 1401H1 averaged 49.1 percent but dropped to 43.4 percent in 1401H2. It means that the aforementioned companies had made less gross

14 -As the interim financial statements or the value of purchasing raw materials of 5 companies were not issued while preparation of this Report, they are not included in our calculations.

profit in the second half of 1401 compared to its first half by 5.7 percentage points on average. Among this companies and in 1401H2, the highest fall in profit margin belonged to Darou Pakhsh Pharma Chem at 18.9 percentage points while the highest rise of the profit margin to Sinadarou Labs at 8.4 percentage points.

Table 7- Developments of Gross Profit Margin in Companies Highly Dependent on Imports of Raw Materials in 1401

	Company Name	1401H1			1401H2			Dependence on Imported Raw Materials (imported raw materials as a percentage of total raw materials)
		Sales (IRR trillion)	Gross Profit (IRR trillion)	Gross Profit Margin (percent)	Sales (IRR trillion)	Gross Profit (IRR trillion)	Gross Profit Margin (percent)	
1	Antibiotic Sazi Iran Co.	1.9	0.6	30.3	6.4	2.0	31.6	97.8
2	Darou Pakhsh Pharma chem	2.7	1.4	53.6	7.2	2.5	34.7	96.7
3	Gelatin Capsule Iran Company	2.9	1.9	64.4	2.6	1.6	60.4	91.6
4	Loghman Pharma	2.1	0.6	26.8	5.5	1.3	23.0	77.0
5	Daana Pharma Co.	11.3	6.2	55.0	18.8	10.5	55.7	70.8
6	Rah Avard Tamin	1.8	1.1	64.1	3.6	2.0	54.5	70.0
7	Chemi Darou	3.4	1.1	32.9	5.6	1.5	26.6	68.6
8	TEMAD	5.9	3.0	49.8	7.1	2.9	40.6	66.2
9	Shahid Ghazi Pharmaceutical Co.	5.4	2.8	51.7	6.0	3.4	56.2	66.0
10	Zagros Pharmed	2.1	0.8	39.3	2.0	0.7	35.5	56.8
11	Sinadarou Labs Company	3.5	1.7	46.5	7.8	4.3	54.9	50.7
12	Sobhan Darou	4.9	2.6	52.3	7.4	3.5	47.1	49.9
13	Jaber Ebne Hayyan Pharmaceutical Co.	3.2	0.9	29.6	4.2	0.5	12.0	46.8
14	Aburaihan Pharmaceutical Co.	7.1	0.4	55.7	7.9	3.5	43.8	39.6
Total		58.3	28.6	49.1	92.1	40.0	43.4	67.7

Source: audited financial statements of the listed companies; research calculations

The gross profit margin for 14 companies with low dependence on imports of raw materials is presented in Table 8. The gross profit margin of this group of companies that averaged 45.9 percent in 1401H1 rose to 47.2 percent in 1401H2. In other words, those companies have made 1.3 percentage points more gross profit margin on average in 1401H2. The highest fall in the gross profit margin in the period under review belongs to Razak Pharmaceutical company at 5.1 percentage points and the highest rise in that ratio belongs to Farabi Pharmaceuticals at 12.1 percentage points.

Table 8- Developments of Gross Profit Margin in Companies with Low Dependence on Imports of Raw Materials in 1401

	Company Name	1401H1			1401H2			Dependence on Imported Raw Materials (imported raw materials as a percentage of total raw materials)
		Sales (IRR trillion)	Gross Profit (IRR trillion)	Gross Profit Margin (percent)	Sales (IRR trillion)	Gross Profit (IRR trillion)	Gross Profit Margin (percent)	
1	Exir Pharmaceutical Co	11.9	5.6	47.1	13.5	6.3	47.0	38.3
2	Pars Darou	4.1	1.8	45.0	6.2	3.0	48.5	37.9
3	Alborz Darou Pharmaceutical	10.5	4.1	38.8	12.6	5.5	43.9	37.7
4	Zahravi	3.3	0.9	28.1	3.3	1.1	31.6	36.9
5	Amin Chemical and Pharmaceutical Co	3.9	1.7	42.7	6.3	2.8	44.1	32.8
6	Abidi Pharmaceutical Co	19.7	12.2	62.1	16.1	10.4	64.6	31.3
7	Avi Cema	0.5	0.2	44.8	0.9	0.4	47.1	29.9
8	Caspian Tamin Pharmaceutical	5.9	2.7	46.7	5.7	2.6	45.3	29.0
9	Darou Pakhsh Pharmaceutical Co	14.8	5.4	36.9	18.3	8.2	44.9	27.9
10	Razak Pharmaceutical	6.5	2.9	45.0	8.1	3.3	39.9	25.2
11	Iranian Parenteral and Pharmaceutical Company (I.P.P.C)	3.5	2.4	67.6	4.8	3.4	69.6	77.8
12	Farabi Pharmaceuticals	4.5	1.3	29.5	12.7	5.3	41.6	7.2
13	Cosar Pharmaceutical Company	1.6	0.5	32.8	6.0	2.3	38.4	3.3
14	Toild Daru	1.8	0.5	26.6	2.7	0.8	30.0	5.4
Total		92.3	42.3	45.9	117.2	55.3	47.2	25.3

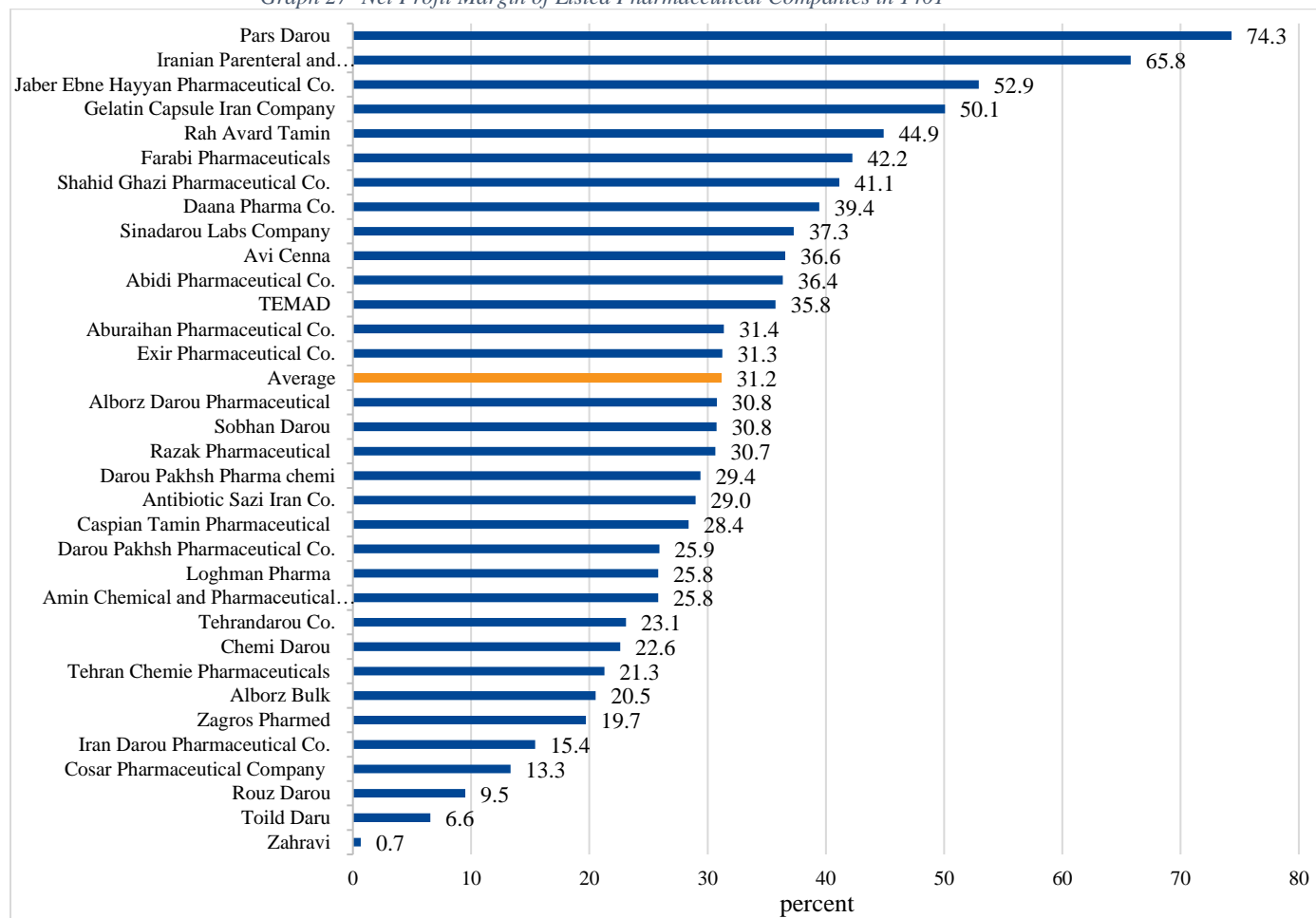
Source: audited financial statements of the listed companies; research calculations

The price of pharmaceutical products has not necessarily risen in proportion to the rise in the costs of production following the rise in the USD/IRR exchange rate aimed to imports of raw materials in 1401. To sum up, the change in USD rate for imports of raw materials has caused the profitability of the companies with high dependence on imports of raw materials to drop and conversely has helped the profitability of those with low dependence on imports of raw material to improve.

11-4- Net Profit Margin of the Listed Pharmaceutical Companies

An examination of the profitability of the listed pharmaceutical companies reveals that in 1401, Pars Darou made the highest profit margin of 74.3 percent and Zahravi Co. made the lowest of 0.7 percent. The profit margin of the 33 listed companies in total, averaged 32.8 percent in 1401. This ratio registered 32.1 percent in 1400 and 37.6 percent in 1399.

Graph 27- Net Profit Margin of Listed Pharmaceutical Companies in 1401



Source: 1401 audited financial statements of the listed companies

12-Financial Ratios of the Listed Pharmaceutical Companies

The financial ratios are the numerical values according to those, meaningful information for assessment of a company performance or comparison of identical companies are gained. Taking into consideration the specific conditions of each industry, the financial ratios are industry-specific, i.e., they ought to be solely used for comparing the companies within the same industry. The financial ratios are categorized into five groups of liquidity, activity, solvency, profitability, and valuation.

- **Liquidity ratios:** these ratios are used as means of assessing the ability of the companies to cover their short-term debts. Among the liquidity ratios, the current ratio - current assets divided by current liabilities - is the most important. The higher the current ratio, the more likely the company is capable of settling its short-term liabilities. The current ratio of below unit indicates negative

working capital and the likelihood of liquidity crisis. On the other hand, a considerably high current ratio alerts that the company is not efficiently using its current assets or its short-term financing facilities. A desirable current ratio in various industries is supposed to lay between 1 and 2. The quick ratio is stricter than the current ratio, as it excludes less-liquid assets such as inventory and advance payments from the current assets. The cash ratio is the most conservative liquidity ratio which comes from division of highly-liquid assets including cash and cash equivalents by the current liabilities.

- **Activity ratios:** these ratios show how efficiently a company uses its assets to generate revenues. The inventory turnover ratio - the cost of goods sold divided by the average inventory - is one of the chief activity ratios. The inventory turnover period which is product of the inverse of inventory turnover ratio by 365 (days of a year) indicates the time interval (days) that the raw materials turn into the goods sold. A long inventory turnover period conveys that either a large amount of capital has been spent on inventory or the inventory of the company is out of date. On the contrary, a very short period might indicate that the company lacks raw materials which threatens its near future sales. The receivables turnover ratio is another activity ratio, obtained from revenues divided by the average receivables. The receivables collection period - the inverse of receivables turnover ratio multiplied by 365 - measures the average number of days it takes for a business to collect payments from its customers for credit sales. A long period indicates that either a considerable portion of the company sales is credit or the company does not have a regular plan for collection of receivables. Conversely, a short period indicates ease of access to working capital. The operation cycle is the sum of receivables collection period and inventory turnover period. A short operation cycle is translated to less need for working capital and shorter period for converting goods produced to cash.
- **Solvency ratios:** these ratios measure how well a company cash flow can cover its long-term debt. The shareholder equity ratio, also known as equity ratio, is one of the chief solvency ratios, equaling total shareholders' equity divided by total assets. The ratio indicates the portion of assets held by the shareholders. The ratio is such crucial that the CBI has prevented the banks from making loans to companies with the equity ratios below 15 percent.
- **Profitability ratios:** these ratios measure the ability of business to generate earnings relative to its revenues, operating costs, and balance sheet assets. They also indicate the efficiency of the managers, ability to make profit, and the return on investments. The return on assets (ROA) which is net income divided by total assets indicates how effective a company is at deploying assets to generate sales and profits. The minimum desirable threshold for ROA is 5 percent. The return on equity (ROE) is the net income divided by the shareholders' equity and measures the ability of the company to earn a return on its equity investment. The net profit margin or net margin, reflects a company's ability to generate earnings after all expenses and taxes are accounted for. It is obtained by dividing net income by total revenues. Operating margin compares operating profit to revenues, measuring how well the company has made profit from its normal operations. The continuous drop in this ratio can put a company in a high-risk situation. The following Tables present the most important financial ratios of the listed Iranian pharmaceutical companies in 1401.

Table 9- Liquidity and Activity Ratios in 1401

Company	Liquidity Ratios			Activity Ratios		
	Current Ratio	Quick Ratio	Cash Ratio	Inventory Turnover Period (day)	Receivables Collection Period (day)	Operation Cycle (day)
Abidi	1.68	0.68	0.16	350	92	442
Avi Cenna	1.72	1.14	0.08	339	303	641
Iran Darou Pharmaceutical	1.45	1.05	0.01	222	318	540
Rouz Darou	1.17	0.59	0.01	240	175	415
Sinadarou Labs	1.65	0.88	0.31	130	68	198
Darou Pakhsh Pharmaceutical	1.32	0.98	0.05	158	256	414
TEMAD	1.48	0.94	0.12	188	165	353
Jaber Ebne Hayyan Pharmaceutical	1.59	1.20	0.07	131	425	556
Daana Pharma	1.61	1.10	0.08	189	225	413
Exir Pharmaceutical	1.38	0.86	0.20	200	211	412
Sobhan Darou	1.50	0.88	0.04	232	211	443
Tehrandarou Co	1.21	0.61	0.08	188	139	327
Zagros Pharmed	1.34	1.18	0.07	55	333	388
Rah Avard Tamin	1.75	0.81	0.50	270	51	321
Toild Daru	1.25	0.85	0.07	146	267	413
Zahravi	1.31	1.12	0.03	81	317	398
Darou Pakhsh Pharma chem	1.56	0.74	0.07	181	96	277
Farabi Pharmaceuticals	1.54	1.14	0.13	109	248	357
Shahid Ghazi Pharmaceutical Co.	1.89	1.00	0.04	163	133	296
Iranian Parenteral and Pharmaceutical	5.30	4.30	1.57	116	115	231
Cosar	1.41	0.92	0.09	151	198	349
Loghman Pharma	1.73	1.26	0.09	84	173	256
Aburaihan Pharmaceutical Co	1.54	1.28	0.05	137	279	417
Chemi Darou	1.37	0.93	0.05	190	222	412
Tehran Chemie Pharmaceuticals	1.11	0.59	0.14	176	183	359
Alborz Darou Pharmaceutical	1.63	1.14	0.10	160	221	380
Razak Pharmaceutical	1.55	1.30	0.01	120	348	467
Caspian Tamin Pharmaceutical	1.34	0.99	0.07	116	248	364
Pars Darou	1.73	1.36	0.01	191	391	582
Amin Chemical and Pharmaceutical	1.47	1.05	0.10	179	254	433
Gelatin Capsule Iran	1.87	0.92	0.52	234	47	281
Antibiotic Sazi Iran	1.52	1.04	0.36	65	104	170
Alborz Bulk	1.39	0.49	0.02	400	135	535
Simple Average	1.62	1.08	0.16	178	214	392
Asset-weighted Average	1.57	1.03	0.13	185	214	399

Source: 1401 audited financial statements of the listed companies; research calculations

Table 10- Investment and Profitability Ratios in 1401 (percent)

Company	Solvency Ratios	Profitability Ratio			
	Equity Ratio	Operating Margin	Return On Assets (ROA)	Return on Equity (ROE)	Net Profit Margin
Abidi	47	48	30	66	34
Avi Cenna	55	34	19	36	37
Iran Darou Pharmaceutical	31	32	12	38	17
Rouz Darou	22	23	8	32	10
Sinadarou Labs	55	48	37	67	37
Darou Pakhsh Pharmaceutical	27	39	24	86	26
TEMAD	37	43	34	85	36
Jaber Ebne Hayyan Pharmaceutical	45	9	26	57	53
Daana Pharma	44	52	36	75	39
Exir Pharmaceutical	31	43	27	76	31
Sobhan Darou	40	44	26	62	31
Tehrandarou Co	30	30	21	78	23
Zagros Pharmed	32	29	15	37	20
Rah Avarad Tamin	44	54	51	120	45
Toild Daru	20	20	5	26	7
Zahravi	28	18	0	2	1
Darou Pakhsh Pharma chem	37	38	37	98	29
Farabi Pharmaceuticals	40	33	39	109	42
Shahid Ghazi Pharmaceutical Co.	59	52	48	93	41
Iranian Parenteral and Pharmaceutical	82	66	75	90	66
Cosar	36	31	13	34	13
Loghman Pharma	72	20	14	19	26
Aburaihan Pharmaceutical Co	37	46	29	83	31
Chemi Darou	28	21	20	66	23
Tehran Chemie Pharmaceuticals	27	23	12	47	21
Alborz Darou Pharmaceutical	48	39	27	56	31
Razak Pharmaceutical	37	38	24	63	31
Caspian Tamin Pharmaceutical	35	43	25	82	28
Pars Darou	45	43	48	113	74
Amin Chemical and Pharmaceutical	46	40	18	37	26
Gelatin Capsule Iran	55	58	61	110	50
Antibiotic Sazi Iran	37	30	39	94	29
Alborz Bulk	30	36	18	57	23
Simple Average	40	37	27	65	31
Asset-weighted Average	40	39	28	69	32

Source: 1401 audited financial statements of the listed companies; research calculations

13- Balance of Extended Facilities (as of 16/09/1402)

Ease of access to sufficient funds for investment or working capital for small and medium enterprises is crucial. All in all, corporate finance can be carried out either from intra sources or from extra ones. For instance, the company can finance the expansion of its activities from accumulated profit (retained earnings), new funds injected by the shareholders or through financial markets including money market, capital market, or even unofficial sources. As the capital market of Iran is not deep enough and the real interest rate in the money market is negative, the companies are reluctant to raise fund from the capital market, subsequently taking out loans from banks. Hence, the Iranian banking system is the main external source of finance for businesses.

According to the circular of the Central Bank of Iran, announced in 1400, the banks can make loans to firms up to 90 percent of their sales value of their preceding year in form of working capital. According to the CBI database, on 16/09/1402 the balance of extended facilities of pharmaceutical companies, both listed and unlisted¹⁵ totaled IRR286.2 trillion and IRR183.9 trillion, respectively. The ratio of the balance of extended facilities to sales of 1401 averaged 71.0 percent for listed pharmaceutical companies. Note that

15-The 33 listed companies in TSE and OTC available in Table 4 of this Report and the 15 largest unlisted companies in terms of sales value based on the Food and Drug Administration.

this ratio in listed pharmaceutical companies is far above that in other listed companies in various industries, hence it is inferred that the Iranian Pharmaceutical industry is extremely dependent on working capital. Middle East Bank (MEB) with share of IRR43.9 trillion in balance of the extended facilities to the listed and unlisted (15 large unlisted companies) pharmaceutical companies ranks as the fourth bank in that regard.

On the basis of the IFDA database in 1401, the sales value of the 33 listed and 15 unlisted companies amounted to 70 percent of the total sales value of the Iranian pharmaceutical industry. Given this 70 percent share coupled with the balance of extended facilities to those 48 companies, the total extended facilities to the Iranian pharmaceutical industry on 16/09/1402 is estimated IRR671.6 trillion. The CBI data reveals that the balance of extended facilities by banks and credit institutions totaled IRR65,772 trillion by the end of fall 1402 (30/09/1402). Hence, the share of the pharmaceutical companies in extended facilities is estimated 1.2 percent. It is worth mentioning that the Iranian pharmaceutical industry constituted only 0.49 percent of the total value-added of the economy in 1399 and continually registered shares below 0.5 percent of GDP during the decade prior to that year, while its share in extended facilities of the banking system is above 1 percent.

14- Balance of Guarantees and Letters of Credit (as of 16/09/1402)

Guarantees and letters of credit (LC) are the products offered to businesses that not only are a source of revenues for banks, but also serve as factor of facilitating the economic activities and driver of economic growth. Due to their lower risk compared to the loans as well as the aforementioned externalities, banks are highly interested in issuing guarantees as well as letters of credit. On 16/09/1402, the balance of the banking guarantees issued for the 33 listed pharmaceutical companies and the 15 unlisted ones registered IRR42.2 trillion. As for the letters of credit, the balance on the same date amounted to IRR1.3 trillion. Hence sum of guarantees and letters of credit of the 48 companies under discussion totaled IRR43.5 trillion. Out of this figure, IRR2.9 trillion belongs to MEB as the second bank in that regard.

15- Unfulfilled Overdue Foreign Exchange Obligations (as of 20/09/1402)

The Iranian importers who raise foreign currencies from banks are required to import the goods they have declared in a given period of time, otherwise they would be classified as importers with unfulfilled overdue foreign obligations. Once such obligations exceed 10 percent of total foreign exchange obligations of the applicants (both individuals and legal entities) they would be deprived of some banking services such as facilities and remittance of foreign currencies.

On 20/09/1402, the unfulfilled overdue foreign exchange obligations registered EUR66.0 million for the 33 listed pharmaceutical companies and EUR35.9 million for the 15 unlisted ones. In the same date the overdue obligations of the listed pharmaceutical companies formed 2.2 percent and that of the unlisted companies constituted 2.1 percent of the total foreign exchange obligations, indicating low risk of imports of these companies given their high volume of imports.

16- Circumstances and Challenges of the Iranian Pharmaceutical Industry

16-1- Value-added tax Exemption

In mid-winter of 1401, the Islamic Republic Parliament passed a law based on which imports of pharmaceutical raw materials, powdered milk, and medical equipment were exempted from value-added tax. According to that law, any kind of imported raw materials or equipment in the aforementioned groups

that is not identically produced in the country would be exempt from value-added tax, albeit once the requirements of the Ministry of Health and Medical Education as well as the Ministry of Industry, Mine and Trade are satisfied. This law is also included in the Budget Law of 1402 regarding imports of medicine and medical consumables.

16-2- Daruyaar Plan

From early summer 1401, the Ministry of Health and Medical Education exercised Drauyaar Plan. According to the Plan the subsidy to the producers and importers of medicine in form of discount in foreign exchange rate was eliminated to be allocated only to the Insurance companies. Prior to the Plan, the suppliers of the raw materials of medicine, medical equipment, and pharmaceuticals benefited from official exchange rate (USD/IRR exchange rate at 42,000). In the aftermath of the implementation of Daruyaar Plan, price of various types of medicine increased between 11 to 110 percent by Ministry of Health and Medical Education, and the subsidy were allocated to clients via insurance companies. 336 prescription-only medication and 120 over-the-counter medicines were included in the Plan.

The implementation of Daruyaar Plan did not put an end to the discount on the foreign exchange rate for pharmaceutical industry, i.e., it still benefited from the secondary market USD/IRR exchange rate of 285,000, which laid between the official rate and the free market rate. In order to protect the final consumers of pharmaceutical producers from the price rise, the government was required to directly pay the subsidy on pharmaceuticals to hospitals and insurance companies.

On the basis of one authority of the Syndicate of the Human Medicine Industries, if Daruyaar Plan is to be successful in 1402, about IRR1.050 trillion has to be allocated to protect the consumers from extra payments for medicine. However, in the Budget Law of 1402, only IRR690 trillion is approved for the medicine subsidy, indicating even 5.5 percent fall compared to IRR730 trillion in 1401. As for the materialization of the approved budget, Islamic Republic Parliament suggests that in the first nine months of 1401 only 7.6 percent of the medicine subsidies was paid. Similarly, out of the legislated IRR230 trillion for the first six month of 1402, only 52.2 percent equivalent to IRR120 trillion was realized, according to the Parliament Research Center.

All in all, the government failure to pay the subsidy to insurance companies is the major weakness of Daruyaar Plan. Precisely speaking, should the insurance companies not be paid on time, the value chain of the pharmaceutical industry would be disrupted.

16-3- The Drawbacks of Decreed Pricing in Pharmaceuticals

In the Iranian pharmaceutical industry, the price of products is derived from costs of production plus the profit margin. The pricing authority (government) by gathering data on the cost of production of various types of medicine and taking to consideration part of the costs as profit, sets the prices and the suppliers are subject to sell the products at those prices. Due to the consequences of decreed pricing, there exist a debate between the authorities and the medicine suppliers. It is worth to mention that the decreed pricing in the Iranian pharmaceutical industry is referred to as the major source of the problems of that industry as follows.

16-3-1- Low-quality Medicine

Even though the pricing process is product-specific, the differences among the plants as well as the lines of productions of identical products which lead to different quality and production cost of the same products are ignored. Hence, for a specific product, the producers gain various profit margins given the same price but different costs of productions. Subsequently, the link between the price and the quality of medicine would be broken. Under such conditions, unlike the free market, the producers try to cut their production

costs in order to benefit from more profit, hence the quality of medicine is sacrificed for gaining more profit and thus there is no incentive to promote the product quality.

Another hinderance to the quality of medicine in Iran is that the production level of each company is subject to the order of the government. They are also entitled to the guaranteed purchase of medicine by the government, hence competition for the market size as well as R&D and any incentive for higher-quality products seems out of context. It could be concluded that the decreed price for homogenous medicines serves as a gift for low-quality producers and a penalty for high-quality ones.

16-3-2- Overconsumption

The medicine pricing system in Iran has led to overconsumption of medicine. As explained above, the low quality of medicine in conjunction with the decreed price, which makes medicine relatively cheap, are the sources of excessive consumption. Precisely speaking, the low quality of medicine causes the physicians to prescribe more medicine than the normal level and the patients, on the other hand consume excessive doses of the medicine. The relatively low price of medicine exacerbates this phenomenon. As a result, a medicine consumption behavior among Iranians has been formed based on which, the type and number of prescribed medicines are considerably above the global standard. In the research carried out in 1398 on 92 million prescriptions, each prescription includes between 2.7 to 3.6 units of drugs on average, that is far above the range of 1.2 to 2 units of the World Health Organization (WHO) standard. In addition to the aforementioned issues, lack of a long-run communication between a patient with a specific physician (consulting to various doctors) and lack of knowledge of drug consumption have made the excessive use of medicine inevitable.

16-3-3- Smuggling

In presence of various prices for a homogenous goods inside and outside of a country and due to the trade limitations, the smuggling happens. This phenomenon also takes place in Iran as a result of the trade limitations on the imports of pharmaceuticals as well as the pricing mechanism of the domestically produced pharmaceuticals.

16-4- Inefficiency of the Governmental Allocation of Foreign Currencies

The allocation of foreign currencies to the pharmaceutical companies at rates below the free-market rates was a practice implemented by the authorities in the post Islamic Revolution of 1357 (1979) aimed to supply pharmaceuticals at cheap prices. Some disadvantages of the government intervention in that area are explained as follows.

16-4-1- Lack of Medicine

The volatility of access to foreign exchange funds inevitably entails lack of medicine and raw materials. Given the consequences of sanctions on Iran and hardness of access to foreign reserves, in the early 1402 the country lacked 180 types of medicine, on the basis of the Health and Treatment Commission of the Parliament. In recent years, shortage in some pharmaceuticals such as antibiotics, drugs for Thalassemia as well as for Factor VII Deficiency has frequently occurred, albeit not necessarily as a result of shortage in foreign currencies. However, due to the high dependence of the domestic pharmaceutical industry to the governmental allocation of foreign currencies, any volatility in foreign funds adversely affects the market for pharmaceuticals, both imported and domestically produced ones.

16-4-2- Low-quality Pharmaceuticals

The uncertainty regarding access to foreign reserves affects the pharmaceutical industry from different aspects. For instance, lack of foreign reserves could be reflected in quality, quantity, and the effectiveness of a medicine, i.e., in order to maintain its market share, the producer is left with no choice but to use cheap and low-quality raw materials. Hence a product of a producer can be supplied at same price while different

qualities, depending on the accessibility of foreign reserves to purchase high quality raw materials. the low-quality of a medicine that a Physician prescribes might discredit him or disrupt the treatment process.

Additionally, in order to cope with problem of uncertainty in allocation of foreign currencies, the producers try to purchase as many raw materials as possible once they have ease of access to foreign exchange reserves. Hence, holding excessive inventory of raw material for a longer time than usual translates to lower quality and effectiveness of the products.

16-4-3- Low Variety of Pharmaceuticals

The exchange rate subsidy ends up in limited variety of pharmaceuticals. The gap between the free-market and the official exchange rates as a source of rent for suppliers of pharmaceuticals urges them to demand excessive foreign currencies. Given the limited access to foreign funds, in order to satisfy the demand, the government has to prioritize foreign exchange allocations. Since the elimination of foreign currencies for the imports of the raw materials of existing drugs is challenging, the allocation of foreign currencies for the new drugs will be limited, translating to continued cheap variety of the pharmaceuticals.

16-4-4- Inefficient Composition of Production Factors

Logically speaking, the combination of factors of production is a function of technology as well as the relative prices. In other words, a relatively cheaper factor is used more than the other ones. Taking into consideration the exchange rate subsidy in the Iranian pharmaceutical industry, the cheaper foreign exchange is equivalent to relatively cheaper imports of raw materials and machinery and subsequently higher incentives for the suppliers to stick to the imported factors of production.

Lack of incentives for developing upstream industries for pharmaceutical production is another drawback of the subsidy on exchange rate. Precisely speaking, in case of relatively cheap imports of raw materials and machinery due to exchange rate subsidy, there would be no incentive for development of the upstream and consequently the pharmaceutical industry remains dependent on the imports from abroad.

16-4-5- Rent Seeking

The exchange rate subsidy on the imports of pharmaceuticals and raw materials is a source of rent for recipients of the subsidized foreign currencies. As the allocation of the foreign currencies for imports of pharmaceuticals is implemented through administrative processes in government councils, there always exists enough room for collusion and bargaining for more access to low-price foreign exchanges.

16-4-6- Unproductive Activities

The decreed pricing of the pharmaceuticals on the one hand and the government supportive policies on the other hand prepares the ground for the suppliers to compete with each other in rent seeking activities. Accordingly, they tend to establish new un-economical production units, solely to benefit from the rents of the exchange rate subsidies. Moreover, as a result of the government protectionist policies, they never face the risk of bankruptcy, hence mismanagement in such firms is inevitable.

17- Policy Proposals

- Gradual Elimination of exchange rate subsidy in order to prepare the ground for price liberalization in pharmaceuticals industry;
- Directing subsidies to insurance companies aimed to reduce the out-of-pocket payments of households;
- Prioritizing health affairs in allocation of sources of budget in practice;
- Elimination of imports and exports limitations to promote competition.

18- SWOT Analysis of the Pharmaceutical Industry

<p>Strengths:</p> <ul style="list-style-type: none"> • Sustainable sales and higher profit margin compared to other industries; • High importance of pharmaceuticals and their strategic role in health system; • Abundant experts in the industry; • Growing demand of medicine due to the health developments and aging of the population. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> • High expenditures of imports of raw materials, packaging and medical equipment; • Low investment in R&D compared to the world level; • Decreed pricing of Pharmaceuticals; • Insufficient sources of insurance companies; • Lack of updated technologies.
<p>Opportunities:</p> <ul style="list-style-type: none"> • Price liberalization; • Exports to neighboring countries; • Improving health insurance; • Foreign investment and new technologies in post-sanction area. 	<p>Threats:</p> <ul style="list-style-type: none"> • Foreign exchange rate volatility; • Limited access to foreign funds and raw materials because of the sanctions; • Multiple exchange rate system; • Longer receivables collection period and lower liquidity and cash flow of the companies; • Government failure to provide resources.

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