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Titan Pharmaceutical: An Introduction to Diverse Market Opportunities*

Seeking to take advantage of the demand for diverse antibiotics, Titan Pharmaceutical, a cephalosporin based pharmaceutical company in China, hoped to further expand into the global market. Yulin Deng, the founder, looked to his executives for a profitable approach. Two options were presented—one in Argentina, where the market was open and had little to no foreign business competition. The other option was Denmark, where the pharmaceutical business was booming but a large market meant more competition. Deng wanted to examine the strengths and weaknesses of the company, and the opportunities and threats involved in each country, to decide which country to enter and how.

Introduction

After looking over the operations and financials of Titan Pharmaceutical, President Yulin Deng decided that it was time for the company to further expand into the global market. Its first foray into Europe, exporting antibiotics to Germany, had given the company some experience with expansion. As Titan Pharmaceutical's forward progress in China began to plateau, the president and board looked to globalization. Yulin Deng was open to exploring various options and he assigned Vice President Yukai Deng and Executive Board Member Qing Ouyang to research further. However, as a medium-sized company with conservative stakeholders, Titan Pharmaceutical is not able to follow more than one path of expansion.

Titan Pharmaceutical Co., Ltd. specialized in research and manufacturing of cephalosporin active pharmaceutical ingredients (APIs). Cephalosporins were some of the most common antibiotics in the world, and the company had adapted the technology of solvent crystallization to allow the raw material to have high crystallinity, good crystal form, high solubility, and stability.

After its establishment in 1995, Titan Pharmaceutical grew steadily, becoming the first manufacturer of cefuroxime sodium for the Chinese Food and Drug Administration (CFDA). This medication was used to treat a wide variety of bacterial infections by stopping the growth of bacteria.

As the company's website notes,²

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Titan Pharmaceuticals develops therapeutics for select chronic diseases utilizing its ... continuous drug delivery platform, ProNeura. ProNeura implants [provide] non-fluctuating, stable levels of medication in the blood for up to one year.

Titan is in the early stages of product development programs utilizing the ProNeura implant for the treatment of Parkinson's disease and hypothyroidism, [and] evaluating the feasibility ... for several chronic diseases, including certain hormonal deficiencies, type 2 diabetes, and others.

To legally sell their products to European countries, Titan Pharmaceutical obtained the Certificate of Suitability to Monograph of European Pharmacopeia (CEP) and certificate of Good Manufacturing Practice (GMP) from the European Directorate for the Quality of Medicines & Healthcare (EDQM) in June 2003.

As the company grew, it developed two subsidiaries, Lijian Pharmaceutical in Shenzhen and Nanchang, which specialized in turning raw cephalosporin into capsules or injections targeted for sale in hospitals, drugstores, and pharmacies (see **Exhibit 1** for an illustration of Titan Pharmaceutical's products).

The list below gives a brief timeline for Titan Pharmaceutical:³

1995: Titan Pharmaceutical Co., Ltd. was established.

1997: Cefazolin acid laboratory with an annual capacity of 80 tons was put into production.

2003: Cefuroxime sodium passed EDMF, which allowed Titan Pharmaceutical to sell in the European market.

2006: Cefuroxime sodium workshop's capacity increased to 300 tons.

2009: Approved supplier of German Ratiopharm, set up solvent recovery laboratory with an annual capacity of 450,000 tons.

2013: Obtained 2010 edition certificate of European Good Manufacturing Practice (GMP).

Challenge of Growth⁴

In 2009, the company began to export products to Germany, where it partnered with Ratiopharm, a German pharmaceutical company that produced Europe's leading generic brand.

Titan Pharmaceutical's research and development (R&D) center was one of the company's strongest attributes. By keeping its R&D center within China, the company maintained control over products and specialization. This required Titan Pharmaceutical to rely on low-cost mass production in China.

The company's growth was increasingly stagnant due to the lack of new business ventures, and Titan Pharmaceutical actively sought new expansion opportunities. As similar cephalosporin products became more popular, the company realized the need to enter new markets before its competitors. The South American Trade Block, Mercosur, is an emerging region where the pharmaceutical industry is poised for expansion.

On the other hand, based on their success in the German market, Yulin Deng expressed his desire to move further into Europe with a more aggressive style. The seal of approval from a well-known industry giant like Denmark could pave the way for Titan's place in other countries.

Vice President Yukai Deng believed Titan Pharmaceutical should export its finished cephalosporin product to Denmark where its value as a generic might allow it to gain ground in the Danish market before the company further expanded into the European market. Executive Board Member Qing Ouyang thought

that the company should jump at first-mover advantages available in Argentina, where Titan Pharmaceutical could compete in an untapped market.

Option 1: Denmark as an Entry Point to the European Union

Economically, Denmark was highly dependent on foreign trade and trade liberalization, with pharmaceuticals being the second most prosperous industry – spending approximately USD 3.50 billion on imported pharmaceutical products in 2015.⁵ Denmark’s high employment levels and generous social security system allowed its citizens to expect (and receive) quality healthcare. From a social perspective, the medical field gave equal access and lack of discrimination in healthcare so that all people received aid. According to the World Bank, Denmark is ranked as one of the easiest countries in which to do business.⁶

Less than 20% of Danish healthcare spending in 2017 was devoted to private care. Public healthcare in Denmark was both expected and high quality. Usage of generics was common and medications were prescribed by a doctor, often from one of the large wholesaler conglomerates, including Novo Nordisk and Lundbeck (see **Exhibit 2** for competitor comparison). Rather than competing with Lundbeck and Novo Nordisk, Titan Pharmaceutical would become, in a sense, part of their umbrella. As many companies export pharmaceuticals to Denmark, Titan would be a niche product in a sea, which could prove to be a popular niche.

Information from the pie chart is given (in ascending order) as a list below (see **Exhibit 3** for an illustration of Europe’s promise via Lundbeck’s revenue per region)

- Europe: 17.0%
- International Markets: 20.0%
- North America: 63.0%

If decision-makers choose to expand Titan Pharmaceutical into Denmark, it would be done through direct exporting. The expected export expenses would be limited primarily to selling expenses as the hallmark of direct exporting is its lack of establishment in Denmark, allowing standard taxes to be the majority of expenses. This method of expansion would be low risk, as Titan would simply provide the product to an established supply chain, allowing Titan to enter Denmark over 18 months while keeping its R&D center within China.

Option 2: Argentina as an Entry Point to Latin America

Argentina’s pharmaceutical market was under-saturated and would allow for a large share of the national market. According to the International Federation of Pharmaceutical Manufacturers and Associations, only about 26% of health expenditures are pharmaceuticals. Argentina had a growing middle class that was gradually increasing its purchasing power. Argentina was a mixed economy which meant the country had both privately and publicly owned companies; private businesses were allowed to expand without strict government regulation. While Argentina’s medical equipment was not as up to date as Denmark’s, most medical professionals have studied internationally, which has brought in a variety of medical techniques. However, there were still misconceptions that generics were a lesser product and therefore further education is needed. There were three parts of the Argentinian healthcare system: the public sector, mutual or social plans, and the private sector. Similar to other countries, Argentina had multiple import policies requiring lots of documentation, including Bill of Lading, Packing List, Insurance Certificate, and Certificate of Origin.

The biotech industry was relatively untouched and there was still a lot of room for improvement for medical technologies. According to the Biotechnology Innovation Scorecard, Argentina scored an 11.3 out of 100, which places the country 54th out of 54 countries compared.⁷ Because of this ranking, Titan

Pharmaceutical would have a first-mover advantage and could capture approximately 30% of the market (see **Exhibit 4** for details covering some of Argentina’s largest pharmaceutical companies). There were 5,012 hospitals in Argentina, of which 70% were private while 30% remained public. The ANMAT: Administración Nacional de Medicamentos, Alimentos, y Tecnología Médica (National Administration of Drugs, Food and Medical Technology) was the decentralized organization of the Ministry of Health that dealt with pharmaceutical regulation. Apart from drug products, ANMAT was responsible for the regulation of food, medical devices, reactants for diagnosis, cosmetics, dietary supplements, and cleaning and other household products.⁸

If Titan Pharmaceutical were to expand into Argentina, a wholly-owned subsidiary was considered because Titan’s goal was to take hold of the little competition and rise to the top of the pharmaceutical ladder. This would require Titan Pharmaceutical to establish a manufacturing plant on location. Although this method of expansion was one of the most expensive and high-risk, the land in Argentina was cheaper than in Denmark (with Argentina averaging USD 3,660 per square meter, Denmark averaging USD 4,711, and China averaging USD 6,577 according to the Global Property Guide) and the payoff would be worthwhile.

Heading of the pie chart reads “Argentina and Other Top Pharma Markets Poised for Success.” Information from **Exhibit 5** is listed below in descending order and aims to provide a visual representation of potential market growth by region (see **Exhibit 5** for an illustrative chart of said data):

- Phamerging: \$372 Billion – 31.0%
- USA: \$360 Billion – 30.0%
- ROW: \$192 Billion – 16.0%
- Europe: \$156 Billion – 13.0%
- Japan: \$120 Billion – 10.0%

The Board Meeting

After President Yulin Deng outlined his wish for the expansion of Titan Pharmaceutical further into the global market, he looked to Vice President Yukai Deng and Executive Board Member Qing Ouyang for their assessment. Both men brought up the Index of Freedom (IoF) in their arguments: the IoF divides a country’s qualities into various aspects that help influence a business’ decision-making process (see **Exhibit 6** for an illustration of the IoF).

Vice President Yukai Deng outlined his belief in the Danish market, saying that a presence there would cement Titan Pharmaceutical as a European brand. He was clear that expansion to Denmark could act as a stepping stone for further exporting into other wealthy Nordic countries and, ultimately, Europe as a whole. Because Denmark had a higher level of business and trade freedom than Argentina, companies would be able to easily diversify to other countries as well as expand into Denmark.

Qing Ouyang extolled the virtues of Argentina as an up and coming country for many industries – pharmaceuticals in particular. He explained that swift entry into the Argentinian market would allow for dominance and a large market share. Argentina had high trade and financial freedom, which would allow a well-financed, international company to be successful.

Financial Comparison

Based on Titan Pharmaceutical’s financial statement, estimates were created based on the sales and cost of goods sold in Germany. Although Denmark is in the European Union like Germany, the country has a relatively high cost of living and would be more expensive. Danish residents are provided “free”

healthcare, only paying for non-essential cosmetic surgery, dentistry, and portions of medication.⁹ While Danish healthcare per person is not cheap (running around USD 3,500 in 2009) it covers 100 percent of its citizens. As most of the costs associated with health are built into the Danish way of life, the out of pocket cost for antibiotics would not be significant for most residents.

In comparison, Argentina had a lower purchasing power, and the sales and cost of goods sold were estimated to be slightly lower. The research and development expense would be the same for both countries due to the use of the same factory machines as well as raw materials usage. Argentinian doctors were trained and efficient but outside of the capital they could be limited by their equipment; similarly, farther from large cities, it would be harder to receive the most modern care.¹⁰ Argentina's inflation and current economic climate could pose a threat to residents seeking medical care. In contrast, a large proportion of Argentinian doctors studied abroad, so their views on antibiotics and those of patients might differ. However, the transportation expenses and the import tax would be different due to shipping and import customs tariffs.

Based on the above assumptions, the direct exporting net income to Denmark would be CNY 2,318,011 (USD 335,933) and Argentina would be CNY 1,315,878 (USD 190,701). A box of 12 antibiotic pills would cost about USD 6.70 in Argentina and about USD 10.70 in Denmark; however, Danes were more likely to have convenient access to medication (see **Exhibit 7** for a financial analysis of estimated expenses if Titan Pharmaceutical were to attempt a wholly-owned subsidiary in Argentina or export to Denmark).¹¹

Exhibit 1 Products of Titan Pharmaceutical



Source: Lijian Pharmaceuticals, 2000.

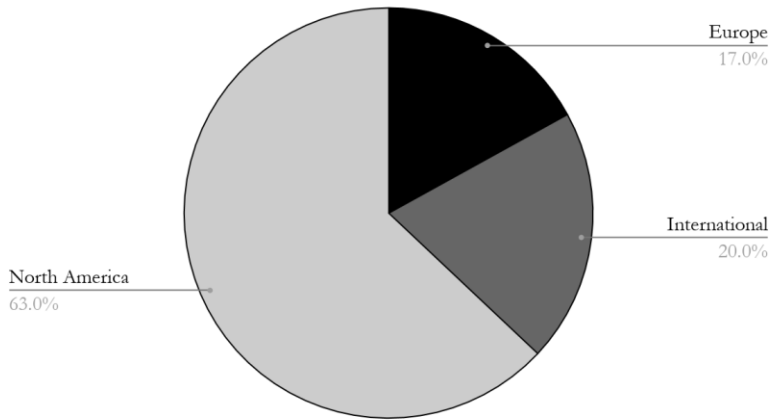
Exhibit 2 Competitor Comparison, Denmark

Company	Specialty	Competitive Advantage
Novo Nordisk (USD 10 million - 2011 Turnover) (Pro Denmark)	Diabetes care - specifically insulin and insulin related products	World leader in diabetes care. China was their third largest market. One of the largest 50 pharmaceutical companies in the world.
Lundbeck (over USD 2.7 million - 2018 Revenue) (Ludbec)	Research. Development, manufacturing of pharmaceuticals to combat brain disease.	Gradual but reliable growth, increased globalization (see Exhibit 3). One of the largest 50 pharmaceutical companies in the world.

Source: Developed by case writers from references.

Exhibit 3 Overview of the EU's Potential Based on Lundbeck's Revenue per Region

Lundbeck's Revenue Per Region 2018



Source: Developed by case writers from references.

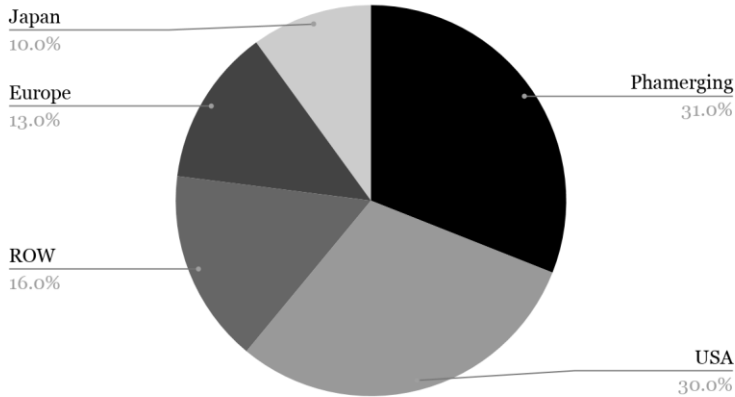
Exhibit 4 Competitor Comparison, Argentina

Company	Specialty	Competitive Advantage
Roemmers (USD 552 billion - 2014 Revenue)	Healthcare delivery; providing pharmaceutical products designed to help healthcare providers improve healthcare delivery.	Ranked first among national pharmaceutical laboratories for two decades.
Laboratorios Bago (USD 288 billion - 2014 Revenue)	Therapeutic products and penicillin-based products.	First company in Argentina to manufacture penicillin-based products, great reputation in Argentina, as well as the rest of Latin America.
Gador Pharma (USD 268 billion - 2014 revenue)	Supporting medical representatives through their products.	Established validity of the active ingredients selected by doctors due to effectiveness and reliability.

Source: Developed by case writers from references.

Exhibit 5 Opportunities of Pharma Markets, Argentina

Argentina and Other Top Pharma Markets Poised for Success



Source: Developed by case writers from references.

Note: Because Argentina was considered a “pharmerging” country, up and coming markets were among the most successful. This gave insight to potential opportunities for Titan Pharmaceutical if they chose to expand to Argentina.

Exhibit 6 Market Attractiveness

Index of Freedom components to consider	Argentina	Denmark
Score	52.2	76.7
Property Rights	47.8	86.2
Business Freedom	56.4	90.7
Labor Freedom	46.9	86.4
Monetary Freedom	60.2	84.1
Trade Freedom	70.0	86.0
Investment Freedom	55.0	90.0
Financial Freedom	60.0	80.0

Source: Developed by case writers based on the Economic Index of Freedom with a scale ranging from 0 to 100.

Note: A score of 0 indicates that there is no freedom in the specified area and a score of 100 indicates there is complete freedom in the specified area. Where there is more freedom, there are fewer hurdles to jump through and fewer obstacles to overcome.

Exhibit 7 Comparative Feasibility Study

	Estimate of the “Entering Denmark” option	Estimate of the “Entering Argentina” option
Total Revenue, CNY	14,953,224	12,754,344
Cost of Goods Sold, CNY	8,368,961	7,868,961
Gross Profit, CNY	6,584,263	4,885,383
Selling Expenses, CNY	1,949,000	899,000
Research & Development, CNY	964,842	964,842
Transportation Expenses	410,357	576,457
Import Tax (6.3%), CNY	942,053	1,129,206
Net Income, CNY	2,318,011	1,315,878
Gross Profit Margin, %	44.03	38.30
Net Profit Margin, %	15.50	10.32

Source: Developed by case writers from references.

Note: On the left is a financial analysis of expansion into Denmark, and on the right is a financial analysis of expansion into Argentina. Denmark was a more expensive option but made a higher profit whereas Argentina was a less expensive option yet made a lower profit.

Endnotes

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