Research on the Risk Management of Pharmaceutical Circulation Enterprises -- Taking Sinopharm Holding Co., Ltd as an Example Based on Data Analysis

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Abstract—With the continuous development of the world economy, the health care industry is also improving. However, due to improper risk control, more and more Chinese pharmaceutical enterprises have gradually increased their sales and receivables, and their capital chain turnover situation is very serious. Therefore, risk management is of vital importance for pharmaceutical circulation enterprises. This paper will take Sinopharm Holding Co., Ltd. as an example, combined with the main risk points of the enterprise, to analyze the business situation and financial situation of the company in recent years. Then analyze the debt-paying ability, operating ability and cash flow through its annual financial report. For example, using some empirical study like financial accounting formula: asset-liability ratio, current ratio or net profit margin to analyze the profitability and capacity. Through its accounts receivable and other data to make its capital needs. Finally, through the above analysis, the risk of the entire industry is analyzed and evaluated. To sum up, China's pharmaceutical circulation industry will enter the era of low profit, the industry growth rate slows down, the industry integration continues, the concentration continues to rise.

Keywords- Pharmaceutical industry; Medical circulation; Risk management; Upstream and downstream customers

1 INTRODUCTION

1.1 Introduction to the medical circulation industry

The pharmaceutical industry [5] is an important part of the national economy. It is a combination of traditional industry and modern industries. The pharmaceutical industry mainly includes three categories: pharmaceutical industry, pharmaceutical circulation and medical services. Among them, drug circulation is an important link connecting the upstream drug production enterprises and the downstream drug retail terminal. Drug circulation [4] enterprises purchase drugs from upstream drug manufacturers, wholesale them to downstream drug circulation enterprises, hospitals, pharmacies, etc., and make profits by trading price differences and providing value-added services. With the gradual increase of the overall trend of aging in China, the improvement of residents' health awareness and the stage by stage improvement of the medical insurance system, people's demand for pharmaceutical products is progressively expanding, which makes the scale of the pharmaceutical market continue to increase, and the regulation of the

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pharmaceutical circulation industry presents a scale trend. But this also leads to the medical circulation market also faces the challenge and the innovation.

1.2 Introduction to relevant concepts

Risk management [3] is a process of behavior norms and behavior guidance, which refers to the management process of how to minimize the possible adverse effects of risks in a certain risk environment of a project or enterprise. The detailed explanation of this project is the process of identifying all kinds of potential events that affect the enterprise in the process of implementing the goal of the enterprise decision, and weighing the cost and benefit when taking measures against the risks that may arise from the potential events by optimizing the effective use of resources. Risk management is very important for today's enterprises, it provides a reasonable guarantee for the realization of organizational goals.

1.3 Introduction to this paper

This paper will take Sinopharm Holding Co., Ltd. as an example, combined with the main risk points of the enterprise, to analyze the business situation and financial situation of the company in recent years. Then analyze the debt paying ability, operating ability and cash flow through its annual financial report. Through its accounts receivable and other data to make its capital needs. Finally, through the above analysis(Figure 1), the risk of the entire industry is analyzed and evaluated. To sum up, China's pharmaceutical circulation industry will enter the era of low profit, the industry growth rate slows down, the industry integration continues, the concentration continues to rise.

Figure 1 [2] the overall process of risk management

2INDUSTRY ANALYSIS

As people's living standards keep improving, the concept of great health continues to strengthen, the aging of the population is deepening, and the scale of the drug circulation market continues

to grow. Since entering the year 2020, the market demand of the Chinese pharmaceutical industry has soared under the influence of novel coronavirus epidemic.

TABLE 1 [1] REVENUE OF CHINA'S PHARMACEUTICAL MANUFACTURING INDUSTRY 2018-2020 (100 MILLION YUAN)

Years of 2018	24200
Years of 2019	26327
Years of 2020	28170

TABLE 2 [1] SALES OF CHINA'S PHARMACEUTICAL MANUFACTURING INDUSTRY (100 MILLION YUAN), 2018-2020

Years of 2018	17100
Years of 2019	17816
Years of 2020	18351

Data from the two tables show that China's manufacturing revenue in 2020 is 2,817 billion yuan, an increase of 7% (From table 1 (Years of 2020 – Years of 2019)/Years of 2019） compared with that in 2019. In 2020, the sales volume was 1,835.1 billion yuan, an increase of 3% (From table 2 (Years of 2020 – Years of 2019)/Years of 2019). In general, in recent years, the income situation and sales overall maintain a sustained growth trend.

2.1Industrial chain

The industrial chain of the pharmaceutical industry (Figure 2) mainly includes the pharmaceutical industry, pharmaceutical circulation and medical services. The main industries upstream of the industry chain (pharmaceutical industry) are the research and development of pharmaceutical products, API, medical packaging materials, and the production of pharmaceuticals and medical devices. Located in the middle of the industrial chain are mainly pharmaceutical manufacturers, whose products include traditional Chinese medicine, chemical medicine, and biopharmaceuticals. The downstream of the industry chain is mainly medical circulation and medical service institutions dominated by hospitals, pharmacies, retail pharmacies, and CDC.

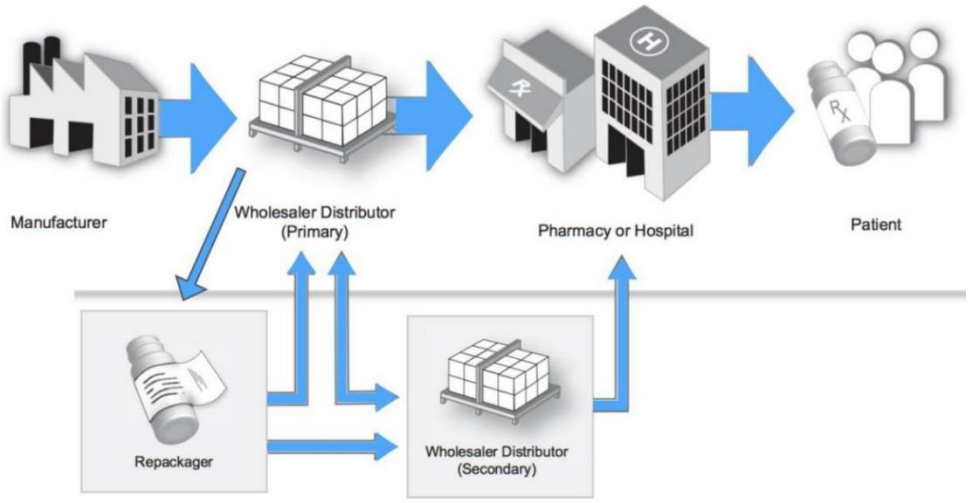

Figure 2 [7] the operation mode of the pharmaceutical distribution industry(the overall process from the upstream customers to the pharmaceutical distribution enterprises to the downstream customers)

2.2Main policies and analysis of the industry

With the accelerating growth of China's pharmaceutical market demand and the continuous improvement of its health insurance system, China's pharmaceutical expenditure is facing the pressure of rapid growth. Cost reduction has become a long-term theme of pharmaceutical industry policies, and related policies have also brought profit pressure to pharmaceutical companies.

In recent years, the growth rate of the total output value of China's pharmaceutical industry has slowed down, because the reform policies for the pharmaceutical distribution industry are in the stage of constant adjustment

2.2.1Strengthening the supervision and control of drug trade

On September 26, 2019, the State Food and Drug Administration of China [5] issued a notice on learning, publicizing and implementing the "Drug Administration Law of the People's Republic of China ", which stated: Strengthen dynamic supervision, cancel the GMP certification and GSP certification, and the drug regulatory department shall inspect the implementation of GMP and GSP at any time. They will improve the responsibility system for drug safety, strengthen supervision during and after the event, focus on prevention and control of disorder, and severely punish illegal acts. Through this policy, the regulatory authorities will improve the supervision of drug manufacturers and try their best to eliminate the adverse effects caused by drug safety. Reducing the flow of fake drugs or substandard doses into the market, resulting in negative effects on patients, is also conducive to the improvement of treatment efficiency in China.

2.2.2After the "two-invoice system", the circulation mode of medicine has been improved

"Two-invoice system" [4] means that only two invoices are allowed in the drug circulation link,

which transforms the business model of the industry into "drug -- drug circulation enterprise -- terminal". The Chinese government has proposed a "two-vote system" [7] reform. The business model after the two-invoice system: the drug is invoiced once from the drug manufacturer to the medicine circulation, and the medicine circulation is invoiced once again to the hospital, replacing the original more middlemen with "two invoices". At the end of 2018, China's "two-invoice system" policy was comprehensive. Although the circulation of drugs is still complicated, in the long run, the implementation of the "two-invoice system" has optimized the purchase and sale order of drugs, compressed the circulation links, standardized the circulation channels and laid a foundation for the medical service price reform.

2.2.3Issue of the new procurement plan

On November 15, 2018, the Document on Centralized Procurement of Drugs in 4+7 Cities [5] was released in full, which guaranteed drug quality and substantially reduced drug prices, promoted the substitution of generic drugs for original research, and reduced the selling cost of pharmaceutical enterprises and the number of drug agents by lowering drug prices and ensuring dosage. 11 cities (i.e. 4+7 cities) including Beijing, Tianjin, Shanghai, Chongqing, Shenyang, Dalian, Xiamen, Guangzhou, Shenzhen, Chengdu and Xi 'an will carry out the pilot program of centralized drug procurement organized by the state. The document announced 31 products to be purchased, of which 25 were awarded successfully. Batches with a large number of varieties with quantity purchasing implement comprehensive promotion and other provinces, country save a lot of health funds, so the country will strongly promote, reducing the original operation of the intermediate links, such as proxy, varieties, clinical medical representatives at all levels will disappear entirely, such as most of the drug varieties in the future only need medicine commercial distribution, it also greatly improves the efficiency.

2.3Common industry risks

2.3.1 Policy risks

The traditional Chinese medicine operation mode in the past has many intermediaries in the industry chain. After the manufacturers produce the products, they distribute them step by step, from large regional distributors to provincial, city and county distributors, to hospital distributors, and then from medical institutions to consumers. The disadvantages of this traditional medicine circulation are obvious because there are many industrial chains, high industrial chain costs, high drug prices and heavy burden on consumers. Small, scattered, disorderly enterprises, service is not standard, drug supervision is difficult; Multi-level consumption, each level will have a certain amount of inventory, resulting in the timeliness of drugs, distribution accuracy can not be guaranteed.

2.3.2 operational risks

Pharmaceutical circulation enterprises are in the mid-stream channel. Because their customers are public comprehensive and specialized RMB 100 million, and the hospitals all take the behavior of credit, pharmaceutical circulation enterprises are faced with the risk of long payment days return and large payment behavior. At the same time, pharmaceutical circulation enterprises for inventory management and inventory growth will also increase the operational risk of enterprises

2.3.3 Quality and safety risks

Drug safety is a crucial part of the state issued by the drug quality management practices (GSP) requirements, the pharmaceutical enterprises of the quality management requirements are extremely strict. Therefore, the requirements of the pharmaceutical circulation enterprises are extremely high. Events including drug storage should not be too long, otherwise it is easy to lead to drug expiration; in the process of transportation, it is easy to damage drugs. Slight deviation, the enterprise and its legal person will be likely to bear administrative legal responsibility, or even criminal legal responsibility.

3 ENTERPRISE ANALYSIS

3.1 Basic information of the enterprise

Sinopharm Holding Co., Ltd. was established in January 2003 by Sinopharm Group and Shanghai Fosun High-Tech (Group) Co., Ltd. [5] and was listed in Hong Kong in 2009. Sinopharm is currently the largest enterprise in China's drug distribution market and medical and health product market, as well as a service enterprise in the supply chain. Its drug sales business is based on the domestic market and facing the world, and it has formed an integrated and coordinated industrial chain from chemical reagents, pharmaceutical industry, medical devices to the distribution and distribution of pharmaceutical and health products and retail chain of pharmaceutical and health products. In 2011, Sinopharms became the first domestic pharmaceutical distribution enterprise with business exceeding 100 billion yuan, and has always maintained the leading position in the domestic Chinese drug distribution market and the medical and health products market.

3.2 Business situation of the enterprise

(The following data are the company's financial data for 2019 and 2020, which are compared to reflect the company's overall operations and thus analyze the entire healthcare industry)

Table3 [5] Main financial data of Sinopharm Holding Co., Ltd. 2019-2020

	Years of 2020	Years of 2019
Total assets	311,080,138,868.88	269,737,853,555.04
Current assets	266,514,147,093.68	229,568,915,213.49
Monetary fund	60,207,957,839.70	49,845,600.097.60
Accounts receivable	134,119,982,689.75	109,511,796,304.49
Notes receivable	2,599,818,264.54	4,141,107,071.87
Advance payment	8,118,099,408.10	8,704,573,680.53
inventory	45,991,646,067.42	42,165,644,727.01
Other accounts receivable	4,877,783,036.98	5,048,132,261.34
Other current assets	984,944,632.48	1,033,115,028.21
Total non-current assets	44,565,991,775.20	40,168,938,341.55
Fixed assets	10,505,811,911.81	8,516,975,001.76
Long-term equity investment	7,770,772,793.84	7,052,380,866.25
Right asset	4,998,165,462.18	4,559,087,637.54
Long-term prepaid expenses	1,170,986,117.91	964,576,767.99
Deferred income tax assets	1,495,767,976.19	1,349,010,469.17
Other non-current assets	1,496,862,337.62	782,637,256.42

Liabilities in total	220,913,994,540.17	192,600,873,087.09
Current liabilities	203,901,066,891.81	178,380,629,326.49
Short-term borrowing	45,955,005,694.37	29,050,807,578.16
Notes payable	33,944,973,994.11	29,321,645,497.63
Accounts payable	78,687,418,781.11	71,012,121,615.13
Contract liability	7,310,215,624.43	5,127,061,253.88
Other Payables	22,564,540,796.39	24,905,606,324.63
Non-current liabilities due within one year	5,705,326,343.97	2,697,319,365.71
Non-current liabilities	17,012,927,648.36	14,220,243,760.60
The lease liability	3,243,011,395.60	3,097,484,984.69
Other non-current liabilities	2,858,821,546.70	687,640,053.34
Owner's equity	90,166,144,328.71	77,136,980,467.95
Paid-in capital	3,120,656,191.00	2,971,656,191.00
Capital office	20,501,667,531.37	17,091,420,660.48
Undistributed profit	31,376,390,966.15	26,285,934,790.97
Operating income	456,414,610,572.14	425,272,725,813.70
Operating cost	415,508,717,344.41	387,322,689,720.23
Cost of sales	1,138,191,263.35	1,002,017,198,92
Management fees	6,463,010,488.77	6,374,940,139.64
Finance charges	2,703,567,500.51	2,925,056,018.64
Operating profit	15,585,934,698.53	13,777,976,316.82
Profit total	15,607,469,675.03	13,774,211,146.16
Income tax	3,502,768,683.18	3,142,928,822.17
Net profit	12,104,700,991.85	10,631,282,323.99
Net cash and cash equivalents	50,178,264,905.69	39,191,967,392.67
Cash inflow from operating activities	502,794,649,298.05	471,218,222,004.20
Net cash flow from operating activities	11,154,609,266.11	18,777,097,578.34
Net cash flow from investment activities	(2,202,759,340.52)	(6,795,967,090.45)
Net cash flow from financing activities	2,025,852,221.61	(13,084,565,887.93)
Asset-liability ratio	71.02%	71.40%
Current ratio	1.3071/130.71%	1.2870/128.70%
Net profit margin	2.65%	2.50%
Inventory turnover	992.39%	1008.58%

Asset-liability ratio: total liabilities/total assets ×100%.

Current ratio: current assets/current liabilities

Net profit margin :(net profit/main business income) ×100%. Net profit = total profit × (1- income tax rate). Total profit = operating profit + non-operating income - non-operating expenses.

Goods turnover (frequency)= revenue/average balance of inventory

Solvency analysis :(here Sinopill Holding Co., Ltd is replaced by G Company)

The main business of G Company is the distribution, distribution and retail of chemical reagents, pharmaceutical industry, medical devices, and medical and health products. Its main downstream

customers are major public hospitals and subsidiaries of G Company in various places, and its payment days are relatively long. By the end of 2020, according to the data in table 3, the asset-liability ratio of G Company was 71.02%, which was lower than that in 2019. In terms of asset quality, the total assets of G Company are mainly current assets, which mainly include accounts receivable, notes receivable and inventory. Among them, accounts receivable and notes receivable are mainly accounts receivable of major public hospitals and subsidiaries of G Company in various places. Although notes receivable have long gas distension, their asset quality is high. Among the current liabilities, accounts payable and other accounts payable account for about 50% of the total current liabilities, the rest is mainly short-term borrowings and notes payable.

Operation capacity analysis:

According to the table 3, in 2020, the inventory turnover rate of G Company is 992.39%, which is lower than that of 2019. However, in general, since drugs are not conducive to storage, G Company always orders goods at any time according to customers' needs and dosage. Therefore, G Company's inventory is controlled at a low level and inventory turnover is faster.

Profitability analysis: Affected by the epidemic, G Company realized an operating income of 456,414,610,572.14 yuan in 2020 (Data from table 3), 7.32% higher than that in 2019(Data from table 3). Company G's net profit margin was 2.65% in 2020 (Data from table 3), up from 2019. In general, the outpatient services of major public hospitals in the downstream customers were restored in an orderly manner, it is expected that the sales revenue and profitability of borrowers will increase in 2021.

3.3Analysis of main risk points of the enterprise

(1) Industry risks: In recent years, with the change of disease spectrum, the acceleration of population aging, the improvement of people's living standards and the enhancement of health care awareness, the whole society's demand for medicine and health will continue to increase, and the drug market will maintain steady growth. With the "two-invoice system", "zero gap", "procurement with quantity" and other medical reform policies taking cost control and price reduction and benefiting people's livelihood as the basic principle, the profit margin of drugs will continue to be greatly reduced, and the overall gross profit margin of the industry has become a trend to reduce.

(2) Liquidity risk analysis: from the point of upstream and downstream supply and marketing chain, the company for customers and upstream downstream hospital foreign pharmaceutical factory bargaining power is not strong, in the hospital customer payment days generally extend the background, the company cannot effectively transfer the resulting liquidity pressure upstream suppliers, so the company in a certain period of time could be relatively tight liquidity.

(3) Product quality risk analysis: the company belongs to the wholesale industry of medical drugs, and the products it operates have high safety requirements. Direct selling and centralized distribution channels may lead to trade disputes caused by products, logistics and other reasons, and even affect the business stability of the company. It is understood that the upstream of the company are well-known manufacturers, cooperation for a long time, product quality is relatively guaranteed.

(4) Risk analysis of accounts receivable: all the downstream hospitals of the company are major public hospitals, which are relatively abundant and have strong payment ability. However, the loan payment days are relatively long and the downstream customers are relatively strong, so it is relatively difficult to verify the authenticity of accounts receivable.

4 CONCLUSION

In this paper, Sinopharm Holding Co., Ltd. is taken as the main research object, and the problems and risks existing in the pharmaceutical circulation industry are understood through the enterprises ranked first in China's pharmaceutical circulation industry at present. With the continuous innovation and change of the pharmaceutical industry, the scale of the pharmaceutical market is also expanding. In order to make the medicine circulation enterprises as soon as possible to find and solve their own problems and risks, risk management is a part of medicine circulation enterprises must take very seriously, and can help enterprises to respond to the changing market economy, to improve their sensitivity to the potential risks, combined with the existing mechanism optimization solution. This research can not be able to analyze the company's risk management comprehensively. At the same time, compared with other enterprises, the enterprise types studied in this paper are not very universal, which is also the weakness of this study.

The author believes that any theoretical analysis is a process that cannot replace the actual operation, and risk management is no exception. The development of enterprises and industries must keep pace with The Times. According to the actual situation adjustment and the different state of the enterprise itself to carry out reasonable risk analysis, in order to more effectively promote the development of enterprises. Policies such as "two-vote" and "quantity purchase" will bring subversive impact to drug circulation enterprises. Extension of drug circulation industry chain, scale development and business model reconstruction are necessary development paths for drug circulation enterprises. Only by providing high-quality services for upstream and downstream enterprises, can they remain invincible in the fierce competition.

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