Financial Risk Influencing Factors and Control Mechanisms in the Pharmaceutical Sector

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Abstract. This paper focuses on the financial risks of China's pharmaceutical industry. Driven by policy support and rigid demand, the industry maintains an overall expansion trend but has entered an in-depth adjustment period with prominent structural risks. The main financial risks stem from three core factors: macroeconomic cyclical fluctuations, policy adjustments such as medical insurance cost control and centralized procurement, and capital market valuation regression and financing differentiation. Small and medium-sized enterprises are under greater survival pressure due to structural contradictions. To address these risks, a multi-dimensional collaborative system featuring enterprise-led prevention and control, policy-guided guarantee, and market environment optimization is proposed. Enterprises, government departments, and the capital market need to work together to promote the industry's transformation from scale expansion to quality and efficiency improvement, ensuring its sustainable and healthy development.

Keywords: Pharmaceutical Industry; Financial Risk; Risk Prevention and Control.

1. Introduction

As a strategic pillar industry safeguarding national health, China's pharmaceutical industry has seen rising status and steady scale expansion driven by population aging and the *Healthy China 2030 strategy*. However, it faces increasingly complex financial risks amid macroeconomic fluctuations, deepening medical security reforms, and rational capital market valuations, which have become a key bottleneck for high-quality development. The industry has entered an in-depth adjustment period, with growing structural risks evidenced by more enterprises and a higher proportion of loss-making ones. Thus, sorting out risk factors, identifying transmission paths, and building effective prevention systems are crucial for enterprise survival and the industry's sustainable development. This paper will analyze the three core risk drivers, namely macroeconomy, policy adjustments, and capital market fluctuations, and propose targeted response measures.

2. Overall Development Trend of the Pharmaceutical Industry

In recent years, with the intensification of population aging in China, the growing demand for public health, and the increased policy support under the national "Healthy China 2030" strategic framework, the pharmaceutical industry has continued to rise in importance within the national economy, significantly promoting its growth.

Firstly, demographic shifts have formed a rigid foundation for pharmaceutical consumption. According to data from the National Bureau of Statistics, by the end of 2024, China's population aged 60 and above reached 310 million, accounting for 22% of the total population. The increase in the aging population has directly boosted market demand for chronic disease management, long-term care, and routine medication. Correspondingly, the prescription drug market and the chronic disease medication market have continued to expand, driving the overall revenue growth of the industry.

Secondly, sustained national policy support has provided a strong guarantee for the industry. The "14th Five-Year Plan for the Pharmaceutical Industry" explicitly proposes to enhance industrial concentration, strengthen original drug research and development capabilities, and promote the substitution of high-end generic drugs for imported products. This series of policy measures has

guided resources toward leading enterprises, encouraged technological innovation and compliant operations, and effectively optimized the industry ecosystem.

Thirdly, capital market support has also driven the rapid expansion of the pharmaceutical industry. The number of pharmaceutical companies listed on the A-share market has continued to grow, with a significant proportion of biotech and pharmaceutical enterprises on the STAR Market. Innovative drugs, biologics, and medical devices have become investment hotspots.

However, the development of China's pharmaceutical industry has also been influenced by demographic changes, national policy directions, and cyclical fluctuations in the capital market. The industry's growth has not been entirely smooth.

From 2018 to 2024, the annual performance of industry revenue did not follow a linear growth trajectory but exhibited significant volatility. This reflects both structural adjustments within the industry and the phased characteristics under the dual influence of policy and market forces. In 2017, the pharmaceutical industry achieved revenue of approximately 2.846 trillion yuan, reaching a relatively high level. However, revenue declined for two consecutive years in 2018 and 2019, with a year-on-year drop of 14.74% in 2018. This downward trend was partly driven by the advancement of medical insurance cost-control policies and the initial implementation of centralized drug procurement reforms, which compressed profit margins for some enterprises and led to cautious market expectations.

The outbreak of the COVID-19 pandemic in 2020, on the one hand, disrupted supply chains, and on the other hand, triggered explosive growth in areas such as medical supplies, vaccines, and traditional Chinese medicine, leading to a 3.97% year-on-year recovery in revenue. In 2021, the industry experienced a rebound growth, with revenue increasing by 17.83%. This was not only due to sustained medical demand driven by the pandemic but also benefited from the modernization of the pharmaceutical industry chain during the "14th Five-Year Plan" period and the elevated strategic positioning of the pharmaceutical industry by the state.

However, starting in 2022, the industry re-entered an adjustment phase, with revenue declining for two consecutive years, particularly in 2023, when the decrease reached 13.42%. This was closely related to the accelerated implementation of the second round of centralized volume-based drug procurement, the two-invoice system, and reforms in medical insurance payment methods, which further compressed corporate profit margins and intensified industry competition. In 2024, revenue in the pharmaceutical manufacturing sector stabilized after declines, with only a slight increase of 0.37%, indicating a slow recovery in profitability and overall industry stabilization.

The continuous growth in the number of enterprises and the rising proportion of loss-making enterprises also highlight the intensification of structural risks within the industry. From 2018 to 2024, the number of pharmaceutical manufacturing enterprises increased steadily from 7,085 to 9,793, a growth of approximately 38.2%. However, operational differentiation within the industry has become increasingly severe. The number of loss-making enterprises rose from 1,022 in 2018 to 2,682 in 2024, with the proportion increasing from 14.42% to 27.4%. Particularly during 2023–2024, the proportion of loss-making enterprises surged significantly, reflecting the intensified market competition, rising raw material costs, and the deepening implementation of medical insurance cost-control policies. Capital and technological resources have accelerated their concentration toward leading enterprises, placing some small and medium-sized enterprises under survival pressure amid fierce industry consolidation.

In summary, although the pharmaceutical industry has maintained an overall expansion trend driven by policy support and demographic changes, it faces challenges in achieving high-quality development. The industry has transitioned from a phase of rapid growth to a period of in-depth adjustment characterized by "stability with a focus on quality, efficiency improvement, and cost reduction." Against this backdrop, establishing a scientific financial risk early warning system, identifying potential at-risk enterprises, and improving resource allocation efficiency have become critical components for the healthy development of the industry.

3. Factors Influencing the Financial Risks of the Pharmaceutical Industry

3.1. Macroeconomic Environment Factors

The development of the pharmaceutical industry is closely linked to the macroeconomic environment. From 2018 to 2024, the growth rate of China's GDP exhibited significant cyclical fluctuations: hit hard by the COVID-19 pandemic, the growth rate plummeted to 2.2% in 2020; it rebounded sharply to 8.4% in 2021 as the pandemic was initially brought under control; subsequently, affected by the tense international situation and domestic structural issues, the growth rate dropped to only 3.0% in 2022, before recovering to 5.2% and 5.0% in 2023 and 2024 respectively. On the whole, the macroeconomic environment of the pharmaceutical manufacturing industry has shifted from high-speed growth to steady recovery over the past few years.

Table 1. Per Capita Consumer Expenditure of Residents, 2018-2024

Year	Per Capita Healthcare Expenditure of Residents (yuan)	Per Capita Consumer Expenditure of Residents (yuan)	Ratio of Healthcare Expenditure to Total Consumer Expenditure
2018	1,685.00	19,853.00	8.50%
2019	1,902.00	21,559.00	8.82%
2020	1,843.00	21,209.88	8.69%
2021	2,115.10	24,100.10	8.78%
2022	2,119.90	24,538.00	8.64%
2023	2,460.00	26,796.00	9.18%
2024	2,547.00	28,227.00	9.02%

In terms of residents' income and expenditure, the per capita disposable income of national residents increased from 28,228 yuan to 41,314 yuan during 2018–2024, with an average annual growth rate of approximately 6%, indicating a sustained improvement in consumer purchasing power. However, the proportion of per capita consumer expenditure allocated to healthcare did not expand in tandem. During the pandemic in 2020, healthcare expenditure decreased by 3.1% year-on-year to 1,843 yuan. Although it resumed growth afterward, the share of healthcare expenditure in total household consumption expenditure only edged up slightly from 8.82% in 2019 to 9.02% in 2024, showing a relatively stable trend. This implies that despite the rise in residents' income, the elasticity of healthcare expenditure remains limited. It reflects that pharmaceutical consumption still demonstrates a certain degree of rigidity during periods of macroeconomic downturn, yet its overall growth potential is constrained by economic cycles and residents' affordability.

In addition, the recovery pace of healthcare expenditure has been somewhat synchronized with GDP growth rate. Particularly during the economic rebound in 2021 and the economic stabilization phase in 2023–2024, the revenue of the pharmaceutical industry also experienced corresponding recoveries. This indicates that macroeconomic trends not only affect the structure of residents' consumption, but also constitute an external driver for the revenue of the pharmaceutical manufacturing industry.

3.2. Policy Factors

Changes in the policy environment constitute a crucial external factor driving the financial risks of pharmaceutical enterprises, which are specifically reflected in several aspects including the continuous strengthening of medical insurance cost control, the normalization of the centralized procurement system, the tightening of regulatory policies, and the rising compliance costs of the industry.

On the one hand, the continuous intensification of medical insurance cost control policies has significantly reshaped the profit structure of the industry. Since 2018, the state has successively implemented the centralized volume-based drug procurement system, aiming to reduce drug prices

and control medical insurance fund expenditures through large-scale centralized procurement. While this policy has effectively alleviated the medication burden on patients, it has also exerted substantial pressure on pharmaceutical enterprises, especially those relying on high-margin generic drugs for profits. For instance, in the fields of active pharmaceutical ingredients (APIs) and conventional generic drugs, market share has accelerated to concentrate in leading enterprises with cost control advantages and large-scale operation capabilities, while the profit margins and market viability of small and medium-sized enterprises (SMEs) have been obviously squeezed. The underlying logic of this trend lies in the mounting financial pressure on the medical insurance fund itself. Data shows that the expenditure of the basic medical insurance fund for urban and rural residents increased from 726.945 billion yuan in 2018 to 1113.836 billion yuan in 2023, representing a substantial growth of 44%. In contrast, the growth rate of revenue during the same period was slightly lower, leading to a significant narrowing of the fund surplus: the surplus stood at 92.224 billion yuan in 2020 but dwindled to only 12.329 billion yuan in 2023. Although the basic medical insurance fund reversed the contraction trend and achieved a current surplus of 51.898 billion yuan in 2024, this was mainly attributed to the slowdown in the growth rate of medical insurance expenditure. The pressure on medical insurance payments is still approaching a critical point, driving the continuous deepening of cost control policies.

Table 2. Revenue, Expenditure and Surplus of Residents' Basic Medical Insurance Fund, 2018-2023

Year	Revenue of Residents' Basic Medical Insurance Fund (100 million yuan)	Expenditure of Residents' Basic Medical Insurance Fund (100 million yuan)	Fund Surplus (Revenue minus Expenditure) (100 million yuan)
2018	7,967.64	7,269.45	698.19
2019	8,679.84	8,271.05	408.79
2020	9,193.93	8,271.69	922.24
2021	9,905.41	9,328.99	576.42
2022	10,170.39	9,352.68	817.71
2023	10,589.03	10,465.74	123.29
2024	11,138.36	10619.38	518.98

At the same time, the rigid growth of medical service prices has further exacerbated the pressure on medical insurance expenditures. From 2018 to 2023, the average medical expense per outpatient visit increased from 272.2 yuan to 361.6 yuan, registering a cumulative growth of 32.8% over six years; the average medical expense per inpatient discharge also rose from 9291.9 yuan to 10315.8 yuan, both showing a trend of rigid growth. Notably, the proportion of pharmaceutical expenditure remains at a relatively high level, accounting for approximately 40% of the total medical expenses for outpatients in 2023. Meanwhile, the growing demand for outpatient services for chronic diseases—with 340 million outpatient visits for chronic and special diseases covered by residents' medical insurance in 2023—and the popularization of innovative drugs and medical devices such as tumor targeted drugs have further pushed up medical costs. These factors have prompted medical insurance policies to implement a full-chain management and control over drug prices, dosage, and payment mechanisms.

In terms of compliance and governance, the increasingly stringent regulatory policies have further raised the threshold for industry access and operation. The amendment of the Drug Administration Law and the Vaccine Administration Law, as well as the full implementation of the Marketing Authorization Holder (MAH) system, require enterprises to strengthen quality control and compliance governance throughout R&D, production, sales, and other links, resulting in a marked increase in the cost of non-compliance. In addition, the nationwide anti-corruption campaign in the

medical sector launched in 2023 has directly impacted the traditional "kickback-driven sales" model. The pharmaceutical representative system and academic promotion activities have undergone intensive rectification, imposing significant pressure on enterprises relying on sales channels for growth and exposing them to the risk of forced restructuring of their sales expense structure and business models.

Table 3. Changes in Per Capita Medical Expenses of Hospitals, 2018-2023

Year	Average Medical Expense per Outpatient Visit (yuan)	Average Pharmaceutical Expense per Outpatient Visit (yuan)	Average Medical Expense per Inpatient Discharge (yuan)
2018	272.20	114.80	9,291.90
2019	290.80	118.10	9,848.40
2020	324.40	126.90	10,619.20
2021	329.10	123.20	11,002.30
2022	342.70	130.30	10,860.60
2023	361.60	145.00	10,315.80

Overall, medical insurance cost control and regulatory tightening have formed the policy backdrop of systemic risks in the pharmaceutical industry. They have not only directly squeezed the profit margins of enterprises but also increased the fixed costs of compliant operations, exposing SMEs to greater financial uncertainty.

3.3. Capital Market Fluctuation Factors

From 2019 to 2024, the performance of the pharmaceutical industry in the capital market has undergone a process of regression from high valuation to rationality, while the financing pace in the primary market has also experienced significant fluctuations.

In terms of valuation, both the price-earnings ratio (P/E ratio) and price-to-book ratio (P/B ratio) of the industry hit record highs in 2020. Specifically, the P/E ratio surged from 47.43 times in 2019 to 62.29 times in 2020, and the P/B ratio climbed from 3.72 times to 5.32 times, reflecting the market's optimistic expectations for the pharmaceutical industry in the early stage of the pandemic. Against this backdrop, the financing enthusiasm of pharmaceutical enterprises in the primary market also picked up, with the number of IPOs and the amount of funds raised growing rapidly, making it one of the key sectors attracting attention in the capital market that year. However, since 2021, the industry valuation has gradually declined, showing a continuous downward trend. This indicates that investors' sentiment has gradually turned rational, and the market has become more cautious in pricing the growth potential of the pharmaceutical industry. During this process, financing activities in the primary market have also cooled down, with both the number of IPOs and the amount of funds raised declining in some years.

Nevertheless, the downward trend has not completely suppressed the financing capacity of high-quality enterprises. Judging from the IPO data in recent years, some enterprises with core technologies, sustained R&D investment and strong internationalization capabilities have still gained favor from the capital market, successfully listed and raised substantial funds. The increasing differentiation in the capital market has prompted pharmaceutical enterprises to continuously improve their governance structure, information disclosure and compliance management to cope with the increasingly stringent market scrutiny.

Starting from 2023, the number of IPOs of pharmaceutical enterprises dropped to 21, with the fund-raising scale reaching 22.356 billion yuan, a sharp decrease compared with the peak in 2021. This trend continued to deepen in 2024, with only 5 pharmaceutical enterprises successfully listed throughout the year, and the fund-raising amount further declined to 1.171 billion yuan. This trend

reflects that against the backdrop of tightened regulation and a more rational market, the financing window has shifted from "generally open" to "structurally optimized", and capital flows have become more inclined to enterprises with technological barriers and profitability.

On the other hand, changes in the international situation and foreign trade pressure have also affected the capital market performance of the pharmaceutical industry to a certain extent. With the intensification of Sino-US technological decoupling, restrictions have been imposed on some pharmaceutical raw materials, technological cooperation and patent licensing, especially in the fields of biopharmaceuticals and high-end medical devices, which has brought challenges to the internationalization process of some pharmaceutical enterprises. In addition, fluctuations in international market demand and the intensification of cross-border certification barriers have also made export-oriented pharmaceutical enterprises face more uncertainties. As the international market has imposed increasingly strict supervision on Chinese pharmaceutical enterprises, export-oriented enterprises are under greater pressure in global competition.

4. Measures to Prevent Financial Risks in the Pharmaceutical Industry

Against the backdrop of the pharmaceutical industry shifting from high-speed growth to in-depth adjustment, and facing multiple financial risk factors such as macroeconomic fluctuations, policy adjustments, and capital market volatility, it is crucial to construct a multi-dimensional and targeted risk prevention system. Combining the core influencing factors of financial risks in the industry, the prevention measures can be divided into three aspects corresponding to the influencing factors: responding to macroeconomic changes, adapting to policy adjustments, and coping with capital market fluctuations.

4.1. Measures to Respond to Macroeconomic Fluctuations

To address the financial risks brought by macroeconomic cyclical fluctuations and the limited elasticity of residents' healthcare expenditure, pharmaceutical enterprises should focus on optimizing business structure and enhancing anti-risk resilience, while relevant institutions need to strengthen policy coordination to stabilize industry development expectations.

Firstly, enterprises should adjust their product structure based on the rigid demand characteristics of the pharmaceutical industry. They should increase investment in the R&D and production of chronic disease medications, essential drugs, and other products with stable market demand, and moderately control the proportion of products highly dependent on discretionary healthcare expenditure. By relying on the rigid demand attribute of pharmaceutical products, they can mitigate the impact of macroeconomic downturns on revenue stability. At the same time, enterprises should actively expand the consumer market hierarchy, explore both urban and rural markets, and tap into the healthcare needs of emerging consumer groups, so as to reduce the impact of uneven macroeconomic development on market demand.

Secondly, enterprises need to strengthen cost control and improve operational efficiency. In the context of slow growth of residents' healthcare expenditure, enterprises should optimize the production process, promote intelligent manufacturing and lean management, reduce production costs and operating costs. They should also strengthen the management of accounts receivable, improve the capital turnover rate, and avoid capital occupation caused by slow payment collection due to macroeconomic pressure. In addition, enterprises can properly use financial tools such as hedging to cope with the risks of fluctuations in raw material prices and exchange rates brought by macroeconomic changes, especially for export-oriented enterprises.

Thirdly, relevant government departments should strengthen macroeconomic regulation and policy coordination. While promoting steady economic growth, they should introduce targeted support policies for the pharmaceutical industry, such as appropriately increasing financial subsidies for innovative drug R&D, optimizing the medical insurance payment structure, and guiding residents' rational healthcare consumption. By stabilizing the macroeconomic environment and improving

residents' purchasing power and willingness to consume healthcare, the industry's development foundation can be consolidated.

4.2. Measures to Adapt to Policy Adjustments

Aiming at the financial risks caused by medical insurance cost control, centralized procurement normalization, and stricter regulatory policies, pharmaceutical enterprises should take the initiative to adapt to policy changes, strengthen compliance management, and transform and upgrade their development models. At the same time, the government should optimize policy implementation methods to balance the goals of cost control and industrial development.

Firstly, enterprises should accelerate the transformation of product R&D and innovation. Faced with the pressure of profit compression from centralized procurement of generic drugs, enterprises should increase investment in original drug R&D, focus on the fields of biopharmaceuticals, high-end medical devices, and personalized medicine, and cultivate core competitive products with independent intellectual property rights. By breaking away from the dependence on low-margin generic drugs, they can enhance their ability to resist policy risks. In addition, enterprises can actively participate in the research and development of medical insurance catalog drugs, and adjust their R&D strategies according to the dynamic adjustment direction of the medical insurance catalog to improve the market access rate of products.

Secondly, enterprises should strengthen compliance management and standardize operational behavior. They should strictly abide by the Drug Administration Law, Vaccine Administration Law, and other relevant laws and regulations, improve the quality control system throughout the entire process of R&D, production, and sales, and reduce the risk of non-compliance penalties. In response to the anti-corruption campaign in the medical field, enterprises should reform their sales models, abandon the traditional "kickback-driven" sales model, and establish a standardized academic promotion system. They should also optimize the structure of sales expenses, improve the transparency of expenses, and avoid financial risks caused by irregular sales behaviors.

Thirdly, the government should optimize the implementation of industrial policies to enhance policy predictability and stability. When formulating and implementing medical insurance cost control and centralized procurement policies, it is necessary to fully consider the bearing capacity of enterprises, adopt a phased and differentiated implementation method, and avoid excessive impact on the industry. At the same time, relevant departments should strengthen policy interpretation and communication with enterprises, guide enterprises to accurately grasp policy trends, and help enterprises adjust their development strategies in a timely manner. In addition, the government should increase support for small and medium-sized pharmaceutical enterprises, such as providing financial support and technical guidance, to help them cope with the pressure of policy adjustments and realize transformation and upgrading.

4.3. Measures to Cope with Capital Market Fluctuations

In view of the financial risks brought by the rational regression of capital market valuation, the cooling of financing activities, and the differentiation of capital flows, pharmaceutical enterprises should standardize capital operation, improve their core competitiveness, and enhance their ability to attract capital. At the same time, the capital market should improve the supervision system and optimize the financing environment of the industry.

Firstly, enterprises should standardize internal governance and improve information disclosure quality. They should establish and improve a modern enterprise system, optimize the corporate governance structure, strengthen internal control and risk management, and ensure the authenticity, accuracy, and completeness of financial information. By improving the level of corporate governance, enterprises can enhance investor confidence and lay a solid foundation for financing in the capital market. In addition, enterprises should strengthen communication with investors, actively disclose information such as R&D progress, business performance, and risk factors, and reduce information asymmetry.

Secondly, enterprises should reasonably plan capital raising and investment activities. They should formulate scientific financing strategies according to their own development needs, and choose appropriate financing methods and financing timing to avoid the risk of financing difficulties or high financing costs caused by capital market fluctuations. When using raised funds, enterprises should focus on core businesses such as R&D and production, avoid blind expansion and speculative investment, and ensure the efficiency and safety of capital use. For high-quality enterprises with core technologies, they should actively leverage policy advantages such as the Science and Technology Innovation Board to realize diversified financing and enhance their ability to resist capital market risks.

Thirdly, the capital market should improve the supervision and service system. Relevant regulatory departments should strengthen the supervision of pharmaceutical listed enterprises, crack down on illegal acts such as false disclosure and insider trading, and maintain the order of the capital market. At the same time, they should optimize the listing and financing system of the pharmaceutical industry, improve the efficiency of review, and provide convenient financing channels for high-quality innovative pharmaceutical enterprises. In addition, it is necessary to guide institutional investors to participate in the pharmaceutical industry in a rational manner, promote the return of industry valuation to rationality, and avoid excessive market fluctuations caused by irrational investment behaviors. For the impact of international situation changes on the capital market, relevant departments should strengthen international cooperation and coordination, help enterprises cope with cross-border technical barriers and trade frictions, and create a favorable international financing environment for export-oriented pharmaceutical enterprises.

5. Summary

In summary, China's pharmaceutical industry shows an overall expansion trend driven by policy support and rigid demand. However, under the combined influence of the macroeconomy, policy environment, and capital market, financial risk prevention and control has become a top priority for the high-quality development of the industry. Cyclical fluctuations in the macroeconomy indirectly affect the stability of corporate revenue by influencing residents' income levels and medical consumption capacity; policy adjustments such as the strengthening of medical security cost control and the normalization of centralized procurement directly squeeze corporate profit margins and raise compliance costs; the rational return of capital market valuations and the differentiation of financing environments exacerbate the uncertainty of enterprises' fund raising and capital operation. These three factors together constitute the main sources of financial risks in the pharmaceutical industry. It is particularly noteworthy that small and medium-sized enterprises in the industry face greater survival pressure under the impact of risks, and the trend of capital and technical resources concentrating on leading enterprises further intensifies the structural contradictions in the industry.

To address financial risks in the pharmaceutical industry, it is necessary to construct a multi-dimensional collaborative system of "enterprise-led prevention and control, policy-guided guarantee, and market environment optimization". Pharmaceutical enterprises should base themselves on their own development reality, and enhance their core competitiveness and risk resilience through measures such as optimizing product structure, strengthening cost control, accelerating R&D innovation, and standardizing corporate governance; government departments need to further optimize the policy implementation methods, enhance the predictability and inclusiveness of policies, take into account the affordability of enterprises while advancing medical security reforms, and increase support for the transformation and upgrading of small and medium-sized enterprises; the capital market should improve the supervision and service system, guide rational capital inflows, and provide diversified financing channels for high-quality innovative pharmaceutical enterprises. Only through multi-party collaboration and precise policies can we effectively resolve the financial risks of the industry, help the pharmaceutical industry get out of the predicament of the adjustment period,

realize the transformation from scale expansion to quality and efficiency improvement, and better play the strategic function of safeguarding national health.

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