

# Research on Tax Planning of R&D Expenses in Pharmaceutical Manufacturing Industry

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## Abstract

Tax planning serves as a critical component for enterprises to enhance core competitiveness. Strategic planning can effectively reduce tax costs and support the achievement of corporate strategic objectives. As a key industry vital to national economy and people's livelihood, the pharmaceutical manufacturing sector accounts for a significant proportion of operational costs in terms of tax burdens. The government has introduced multiple preferential policies, including the R&D expense super deduction and a 15% reduced tax rate, which can significantly lower corporate tax liabilities when properly utilized. This study focuses on A Pharmaceutical Co., Ltd., examining its tax planning strategies aligned with its strategic goals while ensuring legal compliance, aiming to achieve both tax reduction and post-tax profit maximization. The paper first outlines the research background, significance, and current domestic and international studies, defining key concepts such as pharmaceutical manufacturing, tax planning, R&D expense super deduction, and outsourced R&D, while systematically reviewing relevant tax incentives. It then analyzes the necessity and feasibility of tax planning in the pharmaceutical industry based on its characteristics, development status, and tax-related challenges. Finally, by evaluating the company's operational and tax burden data, the study identifies potential planning opportunities, designs corresponding strategies, compares tax burden and net profit changes before and after planning, selects the optimal solution, summarizes research conclusions, and provides recommendations for tax planning in the pharmaceutical manufacturing sector.

## Keywords

Pharmaceutical Manufacturing; Tax Planning; R&D Expense Super Deduction; Outsourcing R&D; High-tech Enterprise.

## 1. Introduction

### 1.1. Research Background

With China's rapid economic development, the healthcare sector has made significant progress, and the pharmaceutical manufacturing industry has flourished like bamboo shoots after rain, playing a crucial role in national economic growth. Currently, the three-medical-linkage reform continues to deepen, and the normalization of epidemic prevention and control has maintained high demand for pharmaceutical products in this field. In the short term, there has been a substantial increase in demand for epidemic prevention drugs, medical diagnostic and therapeutic devices, and related products, which has to some extent driven the development of the healthcare industry. However, from a long-term perspective, China's pharmaceutical industry still faces certain challenges. Due to the high R&D technology, significant risks, substantial investments, and extended timelines inherent in pharmaceutical manufacturing, most drug companies cannot afford the high R&D costs or risks, resulting in severe lack of product innovation and low new drug development capabilities. Homogenization is a serious issue, with only a few pharmaceutical giants possessing the ability to develop new drugs. Most

pharmaceutical companies lack independent innovation capabilities, have limited scale, and produce mostly generic drugs, while the high-end drug market is predominantly dominated by foreign enterprises. Additionally, the efficacy and safety of generic drugs are limited, and their profit margins remain significantly lower compared to international standards. Under these circumstances, it is no longer feasible for pharmaceutical companies to rely solely on generic drugs, necessitating increased R&D efforts. The pandemic has heightened the demand for addressing shortcomings in new medical infrastructure and posed new challenges to pharmaceutical companies' vaccine and innovative drug development capabilities, driving related enterprises to enhance their innovation and R&D capacities.

## 1.2. Research Significance

The pharmaceutical manufacturing industry is a type of high-tech enterprise, and its development cannot be separated from technological innovation. In the context of the overall tax burden across enterprises in China, pharmaceutical companies rank at the top with relatively heavy tax burdens. Therefore, promoting the long-term development and transformation of the pharmaceutical manufacturing industry is crucial.

Innovative R&D is of paramount importance. The government actively promotes R&D innovation. Amid evolving tax policies, pharmaceutical companies now benefit from more favorable tax incentives for R&D, while also facing new demands in tax planning. Strategic tax planning can help pharmaceutical firms reduce tax burdens, ease cash flow pressures, and allocate more resources to product development and manufacturing.

Currently, tax incentives for pharmaceutical companies' R&D expenditures-particularly regarding expense allocation, the scope of additional deductions, and their implementation-still fall short of meeting the industry's innovation demands. To propel the pharmaceutical sector's growth, tax planning strategies for R&D costs can help tax authorities better assess companies' tax burdens. This enables timely policy refinements, identifies effective cost-control approaches, and ultimately reduces corporate tax liabilities.

## 2. Conceptual Definition and Theoretical Foundations

### 2.1. Pharmaceutical Manufacturing Industry

The pharmaceutical manufacturing industry refers to the process of producing new medicinal products through physical or chemical transformations of raw materials<sup>[1]</sup>. It encompasses the production of both traditional Chinese and Western medicines, as well as pharmaceutical active ingredients. The sector is further categorized into seven subfields: chemical pharmaceuticals, production of Chinese patent medicines, processing of Chinese herbal decoction pieces, biopharmaceuticals, medical materials, and manufacturing of medical supplies.

### 2.2. Definition of Tax Planning Concepts

#### 2.2.1. The Concept of Tax Planning

Tax planning, also known as tax optimization or tax avoidance, refers to a series of strategic activities conducted before tax obligations arise<sup>[2]</sup>. Under the premise of complying with national laws and tax regulations, it involves leveraging various tax incentives to plan and arrange tax-related matters in advance, selecting the most optimal tax solutions, and ultimately achieving tax optimization, reduced tax burdens, and deferred tax payments-aimed at maximizing corporate value or shareholder wealth.

#### 2.2.2. Principles of Tax Planning

(1) Principle of Legality.

Firstly, we should pay taxes according to the law, and the tax planning should be in accordance with the law. Secondly, we should keep abreast of the new changes of tax policy.

## (2) The Principle of Predictability.

The planning of work arrangement should be ahead of time, which must be before the tax behavior occurs, through the planning and arrangement of the enterprise's production and operation activities, to achieve the purpose of reducing the tax burden. If the planning is carried out after the tax behavior occurs, the tax amount has been determined, it may constitute the tax evasion.

## (3) Cost-benefit principle.

The principle of tax planning is that the benefit should be greater than the cost, and it should not only consider the lowest tax burden, but also lead to other extra costs and expenses, which will make the overall expenditure increase instead of decrease, and the gain is not worth the loss.

### 2.2.3. Theoretical Basis of Tax Planning

#### (1) Tax Incentive Theory

Tax incentives are government policies that encourage corporate innovation through measures like tax breaks, exemptions, and R&D expense super deduction, thereby enhancing society's overall independent innovation capacity. Companies that succeed in R&D must pay taxes, while those that fail or refrain from R&D are exempt. The super deduction policy compensates for such behavior, minimizes substitution effects, and improves firms' risk management capabilities for R&D failures, ultimately boosting their enthusiasm for innovation (Du Wanjuan, 2021)[18].

#### (2) Market Failure Theory

Pareto optimality, also termed Pareto optimal allocation, represents the ideal state where markets achieve optimal resource distribution under perfect competition. However, this ideal state is not achievable in reality. Market failures in real-world scenarios are caused by factors such as public goods, monopolies, externalities, and information asymmetry. In corporate R&D activities, market failures manifest as the need to correct the externality of R&D costs. Governments address this by providing subsidies and tax incentives to offset corporate costs. Companies are reluctant to engage in independent R&D for two main reasons: first, generic drugs are low-cost and highly profitable, making independent R&D unattractive; second, developing new drugs is costly, has a high failure rate, and successful innovations are easily replicated. To mitigate this, governments implement tax incentives to reduce R&D burdens, compensate for corporate costs, and correct negative externalities.

## 2.3. Definition of R&D Costs

### 2.3.1. The Concept of R&D Costs

It refers to the total costs associated with a product throughout its lifecycle—from project initiation and design to trial production and market launch. R&D expenses encompass all expenditures incurred during the R&D process, including personnel costs, direct investments, depreciation, amortization of intangible assets, new product design fees, clinical trial costs for drug development, and other related expenses.

### 2.3.2. China's R&D Expense Deduction Policy

Effective January 1, 2021, as stipulated in Announcement No.13 (2021) by the Ministry of Finance and the State Taxation Administration, the additional deduction rate for R&D expenses of manufacturing enterprises has been raised from 75% to 100%. For intangible assets formed, 200% of their cost can be amortized before tax.

Prior to 2017, technology-based SMEs enjoyed the same 50% additional deduction rate for R&D expenses as other enterprises. To further incentivize SMEs to increase R&D investment, the Ministry of Finance and Taxation issued a policy in 2017 raising the deduction rate for

technology-based SMEs to 75%. Additionally, the government work report proposed increasing the additional deduction rate for technology-based SMEs from 75% to 100%. The implementation of this measure will further encourage technology-based SMEs to boost R&D investments and pursue innovation activities.

### **2.3.3. Impact of R&D Expense Deduction Policy on Tax Burden**

The R&D expense super deduction policy aims to reduce corporate tax burdens by allowing enterprises to claim additional deductions, thereby encouraging innovation. This policy operates on the principle of the 'revenue-cost-profit' equation. By inflating the total deductible expenses through overstatement of R&D costs while maintaining fixed revenue, it artificially inflates the total expenses. This manipulation distorts the original profit calculation, effectively reducing taxable profits. As corporate income tax is calculated based on pre-tax profits, this policy ultimately lowers the overall tax burden on businesses.

## **3. Analysis of the Development Status and Taxation Situation of Pharmaceutical Manufacturing Industry**

### **3.1. Current Status of Pharmaceutical Manufacturing Industry**

According to statistics, in recent years, the number of pharmaceutical enterprises in China has continued to increase, with the total assets of enterprises also growing and their scale expanding. At the same time, the overall tax payment of pharmaceutical enterprises has been increasing. Under the "4+7" volume-based procurement, generic drugs have accelerated price reductions, and the profit margins of the industry have been significantly compressed. Therefore, the complete reliance on generic drugs is no longer feasible, and some pharmaceutical enterprises have gradually shifted to a "combination of imitation and innovation" approach. According to the China Statistical Yearbook, it can be seen that the national pharmaceutical manufacturing industry is now placing greater emphasis on research and development and innovation.

### **3.2. Major Challenges in the Pharmaceutical Manufacturing Industry**

#### **(1) Heavy tax burden**

The pharmaceutical industry may appear to be a highly profitable sector, but it actually involves numerous hidden costs. Due to the lack of cost invoices, pharmaceutical manufacturers and secondary distributors bear a heavy tax burden. The implementation of the Golden Tax Phase III system has imposed stricter invoice controls, making it improper to reduce tax liabilities through invoice trading. Consequently, the actual tax burden in the pharmaceutical industry remains substantial.

#### **(2) Overall performance remains suboptimal with severe product homogenization**

The pharmaceutical enterprises in China started late, the specialization of products is not high, most of the pharmaceutical enterprises lack the independent innovation ability, the ability of new drug research and development is low, and the gap with foreign countries is large.

## **4. Case Planning**

### **4.1. Basic Information of Company A**

C Group is a highly specialized and innovative modern pharmaceutical conglomerate, specializing in R&D and innovation within the medical infusion industry. It holds a dominant position in both infusion and antibiotic sectors, standing as a leader in China's infusion industry. The group primarily engages in the R&D, production, and sales of 25 dosage forms, including infusions, water injections, capsules, granules, and oral solutions, as well as antibiotic intermediates, active pharmaceutical ingredients (APIs), and pharmaceutical packaging

materials<sup>[3]</sup>. However, its subsidiary A Pharmaceutical Co., Ltd. has limited R&D capabilities and lacks sufficient core production technologies, relying mainly on its subsidiary B for R&D services. B Company, a high-tech enterprise, enjoys a preferential corporate income tax rate of 15%.

#### 4.2. Analysis of Company A's Financial Status

This paper takes the annual report data of A company in recent years as a reference, and through the organization and analysis of various economic indicators, it reflects the financial situation of A company in a specific and intuitive way.

**Table 1.** Financial Position of A Company

a particular year	2024	2023	2022	2021	2020
operating receipt	17277407533	16464201277	17636267044	16351790239	11434948841
actual research and development expenses	49136610	43215731	36383516	25707474	20152007
additional R & D cost	78618576	69145169	58213625	41131958	32243211
profit before tax	1177615711	955030821	1256293926	1333404470	1141276227
business income taxes	274745599	212940186	246951250	89981901	73430477
net margin	853718761	778350501	1004598949	1246462735	797630786

During the reporting period, Company A's operating revenue showed a steady upward trend, reaching 163,517,902,39 yuan in 2021. Moreover, over the past five years, as the company's revenue has grown, its tax payments have also increased accordingly.

#### 4.3. Tax Planning Scheme Design

Based on the analysis above, this paper explores R&D expenses in the pharmaceutical manufacturing industry, primarily from the perspective of corporate income tax for tax planning<sup>[4]</sup>. The following case study illustrates this point.

In 2024, Company A filed 351 patent applications and secured 195 patent grants. As of December 31, 2024, the company had cumulatively filed 4,162 domestic and international patent applications and obtained 2,258 patent grants, with its R&D innovation achievements maintaining steady growth. Reports indicate that all non-self-developed technologies, including patents, were added in 2024, with R&D expenditures reaching 49,136,610 yuan—a 13.70% increase from 2023.

In 2024, A Pharmaceutical Co., Ltd. commissioned its subsidiary B Company to conduct new drug development. The parties signed a technology contract, under which B Company charged A Company 49,136,610 yuan after adding a 10% profit margin to its actual R&D expenses of 44,669,645 yuan. Consequently, A Company's taxable income (pre-tax profit) before deducting R&D expenses in 2024 amounted to 117,761,571 yuan. Assuming no other tax adjustments were made by A Pharmaceutical Co., Ltd. beyond the R&D expenses<sup>[5]</sup>.

#### 4.4. Planning Approach

(1) It is recommended that Company A shift from outsourcing R&D to in-house R&D, thereby increasing the base for additional tax deductions on R&D expenses.

When enterprises outsource R&D activities to external entities or individuals, the actual incurred expenses qualify for a 80% tax credit base. However, effective January 1, 2021, the Ministry of Finance and the State Taxation Administration (Announcement No.13,2021) increased the R&D expense tax credit rate for manufacturing enterprises from 75% to 100%. Consequently, if Company A, as a manufacturing enterprise, possesses sufficient R&D capabilities to reduce outsourcing and shift to in-house R&D, its eligibility for the full 100% tax credit base will expand<sup>[6]</sup>.

(2) If Company A transitions from outsourcing R&D to in-house R&D, this will enhance its proprietary intellectual property, meeting the criteria for high-tech enterprise certification. Consequently, all of Company A's revenue may qualify for a 15% preferential tax rate.

#### 4.5. Planning Process

(1) Before planning

The actual R&D expenses paid by Company A:  $44,669,645 \times (1 + 10\%) = 49,136,610$  (RMB)

Stamp duty payable:  $49,136,610 \times 3\% = 14,741$  (RMB)

Pre-tax profit:  $1177615711 - 49136610 - 14741 = 1128464360$  (yuan)

The adjusted R&D expenses for Company A are calculated as follows:  $49,136,610 \times 80\% \times (1 + 100\%) = 78,618,576$  yuan.

Taxable income:  $1177615711 - 78618576 - 14741 = 1098982394$  (yuan)

Corporate income tax:  $109,898,239.4 \times 25\% = 27,474,559.90$  (RMB)

After-tax profit =  $112,846,436.00 - 27,474,559.90 = 85,371,876.10$  (RMB)

B company :

The incremental revenue covers the R&D expenses paid by Company A, amounting to 49,136,610 yuan.

The incremental cost represents the actual R&D expenses incurred by Subsidiary B: 44,669,645 yuan.

Since Company A has already benefited from the additional deduction incentive, Company B cannot claim it again. As both companies signed a technology transfer agreement, they are required to pay stamp duty. Therefore, for Company B:

Stamp duty payable:  $49,136,610 \times 3\% = 14,741$  (RMB)

Pre-tax profit:  $49,136,610 - 44,669,645 - 14,741 = 4,452,224$  (yuan)

Corporate income tax:  $4,452,224 \times 15\% = 667,834$  (yuan)

Net profit:  $4,452,224 - 667,834 = 3,784,390$  (yuan)

The total net profit of Company A and Company B is 857,517,892 yuan ( $853,718,761 + 3,799,131$ ).

After planning

Option 1:

Company A transitioned its outsourced R&D activities to in-house development. In 2021, the company's actual R&D expenditure of 44,669,645 yuan was eligible for a 100% additional tax deduction, though it did not meet the criteria for high-tech enterprise certification.

Pre-tax profit:  $1177615711 - 44669645 = 1132946066$  (yuan)

Company A's R&D expenses after the additional charge are calculated as  $44,669,645 \times (1 + 100\%) = 89,339,290$  yuan.

Taxable income:  $1177615711 - 89339290 = 1088276421$  (yuan)

Corporate income tax:  $1088276421 \times 25\% = 272069105$  (yuan)

Net profit:  $113,294,606.6 - 27,206,910.5 = 86,087,696.1$  (RMB)

Option 2:

Company A will transition part of its outsourced R&D to in-house development, thereby strengthening its core proprietary intellectual property. This move not only fulfills the criteria for high-tech enterprise certification but also qualifies it for a preferential tax rate of 15%.

Pre-tax profit:  $1177615711 - 44669645 = 1132946066$  (yuan)

Company A's R&D expenses after the additional charge are calculated as  $44,669,645 \times (1 + 100\%) = 89,339,290$  yuan.

Taxable income:  $1177615711 - 89339290 = 1088276421$  (yuan)

Corporate income tax:  $1088276421 \times 15\% = 163241463$  (yuan)

Net profit:  $113,294,606.6 - 163,241,463 = 96,970,460.3$  (RMB)

#### 4.6. Plan Selection

**Table 2.** option comparison

	Before planning		After planning
	A company	B company	Option 1
business income taxes	274745599	667834	272069105
net margin	853718761	3799131	860876961
change in net profit	3359069		
	Before planning		After planning
	A company	B company	Option 2
business income taxes	274745599	667834	163241463
net margin	853718761	3799131	969704603
change in net profit	112186711		

The net profit of Company A is increased by 112186711 yuan in the second scheme, and by 3359069 yuan in the first scheme. The net profit of Company A is increased by 108827642 yuan in the second scheme.

## 5. Research Conclusion

### 5.1. Comprehensive Consideration of the Highest Cost-effectiveness

When conducting tax planning, enterprises should conduct thorough analyses aligned with their strategic objectives and operational conditions, striking a balance between financial management and tax planning. By employing scientifically sound management approaches, companies can enhance capital utilization efficiency, reduce tax burdens and risks, and ultimately maximize profits. Guided by the cost-benefit principle, tax planning must ensure that benefits outweigh costs. Feasible plans should not prioritize minimal tax liability at the expense of additional costs, which could lead to increased overall expenditures and counterproductive outcomes. A holistic assessment of the enterprise's economic interests is essential to achieve value maximization. Furthermore, in compliance with legal principles, all planning arrangements must adhere to statutory requirements. Pursuing profit maximization through illegal means is strictly prohibited.

## 5.2. Pay Attention to Changes in National Policies

China's national industrial policies actively support sector development. As a vital industry directly impacting public health and quality of life, the pharmaceutical sector is a cornerstone of national economic development. The Chinese government has prioritized its growth through targeted policy initiatives to drive innovation in the industry. When conducting tax planning, enterprises must consider policy environments and implement tailored strategies by leveraging current tax incentives. Pharmaceutical manufacturers that fully understand and strategically utilize these tax benefits can effectively reduce their tax burdens.

## 5.3. Outlook and Shortcomings

The limitation of this paper is that the applicable conditions of the additional deduction policy are high, not all industries can enjoy this preferential tax policy, and the effect of the additional deduction policy in different industries may be different, so the research conclusion of this paper on the pharmaceutical manufacturing industry may not be completely applicable to other industries.

Furthermore, given that Company A's R&D expenditure constitutes a significant proportion in this case study, the conclusions drawn here may not be applicable to Chinese enterprises with minimal or negligible R&D investments. Additionally, the data in this case analysis primarily derives from publicly disclosed annual reports and audit reports. Since actual business operations and tax compliance may differ from financial statements, this could introduce certain degree of bias in the research findings.

## References

- [1] Ji Jinbiao. Tax Planning [M]. Beijing: Renmin University of China Press, 2019.
- [2] Cai Chang. The Concept, Connotation and Theme of Tax Planning [J]. Accounting Information, 2017(07):40-42.
- [3] Yang Yuanle. Research on Tax Planning in Pharmaceutical Manufacturing Enterprises [D]. Southwestern University of Finance and Economics, 2019.
- [4] Li Hongmiao. A Study on Tax Planning in Pharmaceutical Enterprises: A Case Study of ZR Company [D]. Huazhong University of Science and Technology, 2017.
- [5] Zhang Yuyang. Tax planning for pharmaceutical enterprises [J]. China Management Information, 2019,22(09):57-58.
- [6] Chen Haiping. Research on Tax Planning and Risk Management in Pharmaceutical Enterprises [J]. Taxation, 2018(13):3-6.