

# A Comparative Research on the Capitalization and Expense Accounting of Enterprise R&D Expenditures

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**Abstract.** The accounting method of R&D expenditure has a significant impact on the production and operation performance of enterprises with the increase of R&D investment. The research analyzes the different effects of R&D expenditure capitalization and expense processing methods on the financial status, capital status and subsequent R&D investment scale of enterprises, and concludes that enterprises should comprehensively balance the principles of measurement prudence and relevance when choosing R&D expenditure accounting policies. The R&D expenditure accounting management should fully reflect the economic essence of the business, support the creation of enterprise value, and meet the normative requirements of internal control. The research provides a reference for enterprises to strengthen the accounting management of R&D expenditures and improve the value level of R&D expenditures.

**Keywords:** R&D expenditure; capitalization; R&D expenditure accounting

## 1. Introduction

The traditional "troika" has gradually weakened the driving role of China's economic development with the relative changes in the advantages of production factors at home and abroad, and the driving role of scientific and technological innovation and technological progress on economic development has gradually increased in recent years. In the process of high-quality development of China's economy, the role of enterprises in innovation has become more prominent, and the growth rate of R&D investment has become more significant. According to the bulletin of the National Bureau of Statistics, China's entire society has invested 2.79 trillion yuan in research and development, a year-on-year increase of 14.2% in 2021. The rapid growth of R&D investment has enhanced the independent innovation ability of enterprises, and produced a large number of new technologies, new products, and new businesses, bringing new impetus to enterprise development and social and economic growth. China's technological innovation capability ranks 12th among 132 economies, up two places year-on-year according to the Global Innovation Index released by the World Intellectual Property Organization. The measurement methods of enterprise R&D activities related expenditures include two categories: capitalization and expense. Different measurement methods have a significant impact on the financial status of the enterprise, and the development prospects and value of the enterprise reflected by them are also more externally concerned.

## 2. Relevant Provisions of the Accounting Standards for Business Enterprises

There are mainly the following accounting treatment methods for corporate R&D expenditures at home and abroad, which is different between countries around the world.

(1) Conditional capitalization treatment represented by International Accounting Standards. The International Accounting Standards (1992, 1995, 2000) stipulate that intangible assets purchased or obtained through legal procedures can be directly capitalized, but the intangible assets developed by an enterprise must divide its entire research and development process into a research stage and a development stage. Expenditures in the research stage must be expensed and included in the current profit and loss; R&D expenditures that meet certain conditions in the development stage can be included in intangible assets. France, Canada, China, South Korea, etc. use this method currently.

(2) The amortization method of expenses represented by British accounting standards. British accounting standards stipulate that the future economic benefits of expenditure on stages such as basic research and applied research should be written off as they occur because they cannot be fully identified. Development expenditure can be capitalized and amortized over a reasonably determinable replacement period, and tested for impairment at the end of each accounting period during the replacement period when certain deferral conditions are met. This method is also used in the European Union, Japan, and Australia and so on.

(3) No capitalizing development expenditures method represented by the United States. US Financial Accounting Standards require that all expenditures incurred for research and development should be accounted for as expenses. The Canadian Institute of Chartered Accountants (CICA) guidelines require research costs to be expensed as incurred, and development costs can only be capitalized if certain conditions are met, and development costs that have not been capitalized before cannot be recovered even if the requirements for capitalization are met thereafter.

China's "Accounting Standards for Business Enterprises No. 6 - Intangible Assets" moved closer to the International Accounting Standards, and implemented the conditional capitalization of R&D expenditures in 2006. Enterprises should divide research and development projects into two stages, the research stage and the development stage according to the requirements of the guidelines. The expenditures in the research stage should be included in the current profit and loss when incurred, and offset the current profit since there is no sufficient evidence to prove that the relevant expenditures in the research stage can bring economic benefits to the enterprise in the future according to the principle of prudence in accounting measurement. The research and development activities in the development stage have been verified in the research stage, and the possibility of their R&D results being converted into assets has been greatly improved. Therefore, the expenditure at this stage can be capitalized as long as it can meet the conditions such as the consumption of related economic resources can be accurately measured before reaching the predetermined usable state, and it can be recognized as an intangible asset of the enterprise and amortized in subsequent accounting periods.

China's Accounting Standards for Business Enterprises adopts a more eclectic approach compared with accounting standards of other countries. The capitalization and expense of R&D expenditures are the active choices of corporate accounting policies and the choices need to clarify the impact on corporate assets, profits, cash flow and other aspects.

### **3. The Impact of Different Accounting Methods of R&D Expenditure On the Financial Status of Enterprises**

The research focuses on comparing and analyzing the impact of R&D expenditure capitalization accounting and expense accounting on the financial status of enterprises. Combined with accounting information measurement requirements, it proposes policy selection suggestions for R&D expenditure capitalization and expense accounting.

(1) The capitalization of R&D expenditures will help enterprises to increase current assets and increase current profits. Enterprises improve the accounting management of R&D expenditures, and capitalize R&D expenditures according to the division standard of research stage and development stage, and the R&D capitalization rate of enterprises will be improved. Compared with the expense treatment of R&D expenditures, the intangible assets of the enterprise increase in the current period, and the current costs and expenses decrease after the R&D expenditures are carried forward to intangible assets at the end of the period; the current profits will increase under the condition of a certain operating income.

(2) The capitalization of research and development expenditures will increase the amortization expenses, reduce the profits and increase the risk of asset impairment in the following years. Assets formed by R&D expenditures will be amortized into costs in subsequent accounting periods, reducing the total profit in subsequent years. R&D projects usually last for a long time, and most of

them are carried out for more than half a year or even several years. Therefore, there may be large R&D expenditures in the company's financial statements at the end of the period. There may be situations where multiple companies conduct research and development of the same products and technologies at the same time in the fierce market competition environment. If the research and development activities carried out by the enterprise lag behind other enterprises in the same industry in terms of time and technological innovation level, the inflow of economic benefits brought by the research and development results to the enterprise will very likely lead to failure to meet the expectations of the management. Capitalizing R&D expenditures with no economic value will result in the risk of impairment of corporate assets in subsequent years.

(3) There will be a delayed effect on the enjoyment of the preferential tax deduction policy for income tax after the capitalization of R&D expenditures. China allows enterprises to enjoy a pre-tax deduction policy for eligible R&D expenditures currently, thereby encouraging enterprises to carry out R&D activities and achieve innovative development. The portion of R&D expenditures included in profit and loss shall be deducted pre-tax at a rate of 50%. If the R&D expenditure is capitalized to form intangible assets, it shall be amortized before tax at 150% of the cost of the intangible assets. The pre-tax deduction of R&D expenditures and asset costs is conducive to reducing corporate tax burdens and increasing corporate cash flow. The expensed R&D expenditure will enjoy the preferential tax policy of additional deduction before income tax in the current year. Under the capitalization treatment method, the formation of intangible assets will be apportioned to achieve pre-tax deduction in subsequent years, so that the capitalization treatment will have a hysteresis effect on the enjoyment of income tax preferential treatment compared with the expense treatment. At the same time, if the financial accounting does not properly handle the expense and capitalization of R&D expenditures, it is easy to be questioned by the tax authorities during the inspection, and even tax risks may arise.

(4) The capitalization of R&D expenditure is conducive to promoting enterprises to increase R&D investment. The R&D expenditure of the enterprise comes from the self-raised funds of the enterprise, the government subsidy and the investment of other units, of which self-raised funds are the main source. According to the "Notice on Improving the Pre-tax Deduction Policy for Research and Development Expenses" (Cai Shui [2015] No. 119) issued by the Ministry of Finance, the State Administration of Taxation, and the Ministry of Science and Technology, the actual expenditures that meet the regulations in the conduct of research and development activities by enterprises, If intangible assets are not included in the current profit and loss, 50% of the actual amount incurred in the current year shall be deducted from the taxable income of the enterprise in this year; if intangible assets are formed, 150% of the cost of intangible assets shall be amortized before tax. Therefore, improving the capitalization management of R&D expenditures by enterprises will increase the capitalization rate of R&D expenditures; compared with R&D expenditures, the assets formed by R&D can achieve more deductions before tax, reduce the amount of tax paid by enterprises, and increase the disposable income of enterprises. The cash flow reduces the capital occupation at the disposal of the enterprise, thus helping the enterprise to increase R&D investment to a certain extent.

(5) Excessive capitalization rate of R&D expenditure may lead to internal and external regulatory risks. The capitalization of R&D expenditures depends to a certain extent on the professional judgment of enterprise managers, and professional judgment is based on the enterprise managers' understanding of the "Accounting Standards for Business Enterprises" and relevant regulations of the enterprise, as well as personal professional experience. Therefore, the capitalization of R&D expenditure is often concerned by industry supervision, tax audit, financial statement audit, internal audit and other aspects. Internal and external supervision and audits often focus on the rationality and reliability of the capitalization of R&D expenditures, such as whether the division of the research stage and the development stage of the enterprise under review is consistent with the specific process of the R&D project, whether it conforms to the practice of the industry, and whether it conforms to the principle of prudence and substance over form, etc. Among

them, the IPO review and supervision are the most stringent. The issuer needs to provide relevant evidence that the R&D results can improve the profitability and asset quality of the enterprise. The reviewer needs to restore the capitalization of R&D expenditures, and judge whether it meets the growth indicators and whether it meets the basic conditions for initial public offerings based on the restored relevant data. If there is a change in the accounting policy for the capitalization and expense of the R&D expenditure of the enterprise under review, it is also necessary to judge the rationality of the change in the accounting policy.

Compared with the accounting treatment of R&D expenditures, the capitalization of R&D expenditures will increase current assets, current profits, and current cash flow, and reduce current costs, current income tax expenses. In addition, due to the uncertainty of the internal control of the enterprise in the process of capitalization of R&D expenditure, it will also increase the loss of asset impairment in the following years, increase the tax risk and external supervision risk.

#### **4. Analysis of the Choice of Accounting Policies of Enterprise R&D Expenditure**

The core purpose of accounting is to provide information users with information that is conducive to decision-making. Whether the R&D expenditure accounting method is capitalized or expensed depends on which method is more conducive to the accounting information demander to make correct decisions. Therefore, enterprises need to make a certain degree of professional judgment on the economic substance of R&D activities when dealing with R&D expenditures.

(1) Adhere to accounting measurement principles such as prudence and objectivity, and ensure that the accounts are consistent. Research and development activities have the characteristics of large investment, high risk and long cycle. There is a high degree of uncertainty as to whether and how much the expected benefits will be realized. The choice of accounting policy for capitalization or expense treatment essentially depends on the enterprise's own judgment on the risk characteristics and return characteristics of research and development activities. When weighing between the principles of prudence and objectivity, enterprises should make judgments on the priority of the principles of prudence and objectivity. The importance of the principle of objectivity is generally greater than that of other principles, and the principle of prudence must be implemented and applied on the basis of maintaining the principle of objectivity. Only true and accurate information and information that fully reflects the true value of R&D activities can support decision makers to make correct and reasonable decisions.

(2) The choice of accounting policies to carry out R&D investment accounting with the orientation of supporting enterprise value creation. All business activities of an enterprise serve the fundamental purpose of value growth. The accounting for the expense or capitalization of R&D input may affect the value of R&D input and output, such as profit creation, tax saving and innovation reputation. Corporate expensed and capitalized R&D expenditures are supported by different tax incentives or government subsidies. Enterprises should decide to adopt expense-based or capitalized methods based on the strength of government subsidies and tax incentives under different measurement schemes to maximize the support of value creation capabilities. In addition, companies can transmit reputational signals such as innovation input and innovation efficiency to the outside world through the scale of R&D expenditure capitalization. High-tech listed companies tend to use the capitalization method of R&D expenditure, while state-owned enterprises tend to use the full expense method.

(3) Focus on improving the effectiveness of corporate internal control to support the accounting treatment of capitalization of R&D expenditures. China's "Accounting Standards for Business Enterprises" is relatively vague on the division between the research stage and the development stage, and enterprises often have greater discretion when choosing accounting policies. This requirement makes the capitalization treatment subject to the scrutiny of internal and external supervision. The establishment and improvement of the internal control mechanism of enterprises in

the process of R&D expenditure management is an important basis for supporting capitalization. Therefore, enterprises should establish and improve relevant mechanisms for capitalization of R&D expenditures to meet internal lean management requirements and external regulatory requirements such as taxation and auditing.

The choice of R&D expenditure accounting policy is essentially a balance of accounting principles such as the principle of prudence and the principle of objectivity due to the high-risk characteristics of research and development activities and the long-term characteristics of returns, so as to maximize the ability of accounting policies to reflect the essence of economic business. The capitalization and expense of R&D expenditure is the active choice of corporate accounting policy. This kind of active selection needs to clarify the impact on enterprise assets, profits, cash flow and other aspects, and is based on the balance between the principles of prudence and objectivity, oriented to support the creation of enterprise value, and continuously improve the internal control effectiveness of the enterprise.

## 5. Summary

Research and development activities are essentially characterized by long periods, high risks, and high uncertainty of returns. The return on investment in research and development activities may be realized in the coming years. The probability of success of research and development activities is highly uncertain in the early stage, but after in-depth exploration in the middle and later stages, the probability of success will be greater. In this case, it can be judged that economic benefits are likely to flow into the enterprise. The choice of accounting policy for capitalization or expense treatment is affected by the distribution of risks between the period of inflow of economic benefits from research and development activities and the period of research and development activities. R&D expenditure accounting management will have a wide and profound impact on the current and later assets, costs, profits, cash flow, tax burden, risks, etc. of the enterprise, which affects the value management and growth of the enterprise in turn. Enterprises should comprehensively consider factors such as the characteristics of the enterprise's industry and profitability, and comply with internal and external information users, including management, investors, regulators, etc., for accurate and prudent R&D expenditure-related information require when choosing R&D expenditure accounting policies. It can not only fully reflect the future potential of research and development activities to increase the value of the enterprise to support the creation of enterprise value, but also promote the effectiveness of the internal control of the enterprise to comply with internal and external supervision and risk control norms, and finally lay a good foundation for the improvement of enterprise value.

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