

# Research on the Impact of Executive Team Characteristics on R&D Investment of Listed Companies

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**Abstract:** In recent years, the R&D investment of listed companies has become increasingly dependent on the influence of executive teams. The executive team plays a role in accurately grasping the development direction, promoting the implementation of enterprise development strategies, and formulating rigorous R&D innovation strategies in the R&D investment of listed companies. Analyze the impact of executive team characteristics on research and development investment of listed companies based on this role. Through analysis, it can be seen that the age of the executive team can hinder the R&D investment of listed companies, and the proportion of female executives can weaken the R&D investment process of listed companies. Limiting the tenure of the executive team can help promote R&D investment of listed companies, and recruiting executive teams with rich international experience can help enhance R&D investment of listed companies.

**Keywords:** Characteristics of the executive team; Research and development investment of listed enterprises; Female executives; International experience

## 1. Introduction

Under the new normal environment of national economic development, listed enterprises gradually grow into the core enterprises of national R&D and innovation, and shoulder the mission of independent research and development, innovation and development. The characteristics of senior management team indicate the direction in the development of listed enterprises and have a far-reaching impact on the R&D and innovation input of listed enterprises. Most of the existing research results take large enterprises as samples, and there are few studies on listed enterprises, let alone studies on the relationship between R&D investment and senior management team of listed enterprises. In view of the current corporate environmental status, listed enterprises occupy a large proportion in the development components of the national economy. Therefore, the conclusions obtained by taking listed companies as research samples may have better practical significance. According to the research results of previous scholars, the executive team plays an irreplaceable role in promoting the research and development of listed companies. This article does not focus on individual parts of the characteristics of the executive team and their impact on the R&D innovation investment of listed companies. Instead, it looks at the characteristics of the entire executive team and takes their common parts as the research object to analyze in depth and detail the impact of the characteristics of the executive team on the R&D investment of listed companies. The article will be structured into four sections: firstly, the important role of senior management team in R&D investment of listed enterprises will be introduced; secondly, the impact of executive team characteristics on research and development investment of listed companies will be analyzed, including the hindering effect of overage executive team on R&D investment, the potential weakening effect of excessive proportion of female executives on R&D investment process, the positive impact of limiting the tenure of senior management team on promoting R&D investment, and the beneficial effect of recruiting senior management team with rich international experience on enhancing R&D investment; finally, the research findings will be summarized and corresponding recommendations will be proposed.

## 2. The important role of senior management team in R&D investment of listed enterprises

The research shows that the combination of external factors and internal factors in the development of listed enterprises affects the decision-making of R&D investment. The external factors are mainly

market environment fluctuations, policy changes and government support, while the internal factors include corporate ownership concentration, corporate profitability and senior managers [1]. The two influence each other, and the external factors show through the internal factors, so as to achieve the guidance of enterprise R&D investment. It can be seen that internal factors play a key role in the process of R&D investment. As an important part of the internal factors, the senior management team should be paid more attention to. The task of the executive team is to accurately grasp the development direction at the beginning of the enterprise's development, to promote the implementation of the enterprise's development strategy, and to formulate a rigorous R&D innovation strategy. These are necessary factors for the enterprise's R&D investment. In the ever-changing market environment, in order to respond to challenges in a timely manner, enterprises need to continuously develop themselves, enhance their knowledge and skills, and make decisions that are in line with the environment. However, the ability of a single executive in the executive team cannot meet the growing decision-making needs of the enterprise. Therefore, the executive teams of listed companies nowadays have good inclusiveness, attracting managers from various fields and departments to make the most suitable decisions for the enterprise through continuous discussion. From this, it can be seen that the executive team has a significant impact on the R&D and innovation investment of enterprises.

As an internal factor affecting the R&D investment of listed enterprises, the senior management team needs to analyze the internal and external environment of the enterprise before making decisions, including the fierce market competition environment and the development position of the enterprise itself, so as to quickly and effectively analyze the situation, integrate information, and finally make scientific and effective decisions. Throughout the whole decision-making process, there will be hidden factors that are difficult to change. For example, the decision-making development of the senior management team will be affected by the values, cognitive level and decision-making preferences of the team members. However, this implicit factor problem is not unsolvable. Visualization of the influence data can be used to study the influence of the characteristics of the top management team on the R&D input of listed enterprises by using demographic methods from the aspects of age, gender and education level.

### **3. The impact of executive team characteristics on research and development investment of listed companies**

#### ***3.1 Overage of the executive team hinders research and development investment of listed companies***

The life experience and worldview of the executive team constantly change with age, which also exposes the different concepts of managers at different age stages in constructing and processing information. Foreign scholars have proposed that the level of risk preference in executive teams is often influenced by the age of internal team members, which in turn affects the level of innovation and development of enterprises. Senior managers in their youth stage have a longer-term perspective on their career planning due to their flourishing life. They are more willing to accept new things and technologies, are willing to take risks, and prefer to develop creative but high-risk and high-return strategies. On the contrary, older senior managers, since they are in the twilight of their lives, tend to prefer stable development in career planning. Therefore, they develop risk-avoidance strategies based on their own experiences and lessons and pursue stable returns. For this reason, older executive teams often find it hard to embrace innovative ideas. Studies have shown that senior executive teams tend to avoid risks and pay attention to safety in the decision-making process [2]. With age comes a decline in physical strength and energy, which affects their ability to receive and understand new ideas; This is where the benefits of a young executive team come in. Their worldview is more closely aligned with, or even aligned with, emerging developments in the current knowledge environment, and they are better able to detect weak signals in the environment in terms of emerging technologies and changing consumer preferences.

In summary, when CEOs wish to increase their R&D investment, young executive teams often choose to support the CEO's bold decision to increase R&D investment. In contrast, older executive teams may hold opposing opinions, which can have a negative impact on the company's development.

#### ***3.2 Excessive proportion of female executives can weaken the R&D investment process of listed companies.***

In recent years, the number of female executives in the executive team has gradually increased, and

scholars have begun to focus on the impact of gender on enterprise R&D investment and decision-making operations. In response to differences in personality and risk preferences among executives of different genders, some scholars use the proportion of female executives in the executive team to measure the impact of gender on enterprise innovation investment [3], but the research conclusions in the industry are not consistent. Some researchers believe that female executives have a positive impact on corporate R&D investment. Research has found that female executives have significant improvements in promoting internal communication within the team, as well as excellent performance in making high-quality decisions and innovative solutions. The research team even suggested that there should be no less than three women in the team. However, some scholars have taken listed startups as research subjects and found that executive teams with female executives did not significantly improve R&D investment, especially in the technology and telecommunications industry. Therefore, some scholars believe that the excessive proportion of female executives in the senior management team will hinder the R&D investment of listed enterprises. Research shows that female executives are far less enthusiastic than their male counterparts about R&D and innovation, and while companies with more female executives are less likely to experience corruption within them, this also limits the positive effects of corruption in promoting innovation. Some scholars took communication and computer industries as samples and reached the same result after research, that is, a large proportion of women in the senior management team has a negative weakening effect on the R&D investment of enterprises [4]. To sum up, senior management teams with a large proportion of female executives cannot play a good role in promoting R&D investment of listed enterprises.

### ***3.3 Limiting the tenure of senior management team is conducive to promoting R&D investment of listed enterprises***

The tenure duration of the executive team within a company has a significant impact on its management and development. As different executives have varying tenure times, their understanding of the company's business and operations also differs. This implies that the tenure duration of the executive team may affect the company's decision-making, strategic planning, personnel management, and other aspects. There are two divergent perspectives in the academic community regarding the impact of executive team tenure duration [5]. On one hand, long-term tenure can promote mutual understanding and adaptation among internal personnel, thereby reducing communication costs and improving work efficiency. Additionally, extended tenure can facilitate the integration of crucial information within the company, identifying opportunities for R&D innovation activities, and increasing R&D investment. On the other hand, some scholars argue that giving senior executives a lengthy period of service may lead to their bias towards their own group, causing internal management personnel to converge and impeding the germination of new ideas and perspectives, which hinders the company's sound development. In such a monolithic environment, it is difficult to create a nurturing atmosphere suitable for R&D and innovation activities, ultimately leading to a decline in the company's R&D and innovation input. This theory has been empirically proven in 144 listed companies. Therefore, limiting the tenure of the senior management team has a positive significance in promoting R&D investment and innovation in listed companies.

### ***3.4 Recruitment of senior management team with rich international experience is conducive to enhancing R&D investment of listed enterprises***

International experience refers to having experience studying or working abroad. Recruiting an executive team with rich international experience is because, firstly, studying or working abroad not only brings people an open perspective, but also the exchange and integration of advanced management ideas. This can help the executive team identify the effective information that the enterprise needs, thereby making the enterprise more precise in seizing research and development opportunities. Secondly, executives with international experience are more aware of the importance of having a sense of adventure and innovation in their work. Correspondingly, they also have a better sense of resilience in taking risks [6]. Based on this situation, they are more willing to focus their investment on high-risk R&D innovation projects in order to increase their R&D investment. Based on the understanding of the domestic market environment by the local executive team, a strong alliance between the two can effectively solve the problem of executives with international experience being "acclimated" and develop effective strategies that are more in line with the company's actual situation.

The senior management team with rich international experience is more professional in core technology and more knowledgeable in the actual situation of the enterprise and market information.

Based on these two points, they can gain more effective insight into the key information and make more accurate judgments when facing the work related to the enterprise's R&D investment. At the same time, it also helps the CEO to put forward pertinent suggestions and formulate precise strategies when making decisions. Help in this aspect can greatly enhance the confidence of the CEO in carrying out innovation activities, and effectively motivate those CEOs with a long term tenure who lack innovation consciousness and prefer to be content with the status quo, so as to make them more active in carrying out innovation activities. So as to increase enterprise research and development investment. Moreover, recruiting a team of executives with rich international experience into the enterprise can effectively promote the exchange and sharing of culture, knowledge, and information resources within the enterprise, optimize the internal atmosphere of the enterprise, and work together for upward and compatible development [7]. At the same time, it is also more conducive to enhancing the CEO's awareness of scientific decision-making. When making CEO decisions, an internationally experienced executive team can provide more relevant advice and thoughtful guidance to the CEO, reducing the risk of enterprise R&D investment and promoting the CEO to make more decisions related to enterprise R&D investment.

To sum up, the international experience of the senior management team can make CEOs with a long tenure realize the importance of increasing R&D investment to bring profits to the company. At the same time, it also enables CEOs to implement more R&D investment and plays a better role in the development of the enterprise. Therefore, recruiting senior management team with rich international experience is conducive to enhancing R&D investment of listed enterprises.

#### 4. Conclusion

This article analyzes the impact of executive team characteristics on R&D investment in listed companies from both theoretical and empirical perspectives, and concludes that the average age of executive teams and the proportion of female executives have a negative impact on R&D innovation investment in enterprises; The average tenure of the team and international experience have a positive impact on the R&D and innovation investment of enterprises. However, although the research has achieved certain results, due to the limitations of some subjective and objective factors, there are still issues with limited research content and insufficient in-depth research in this article.

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