Equity Heterogeneity, Manager Tenure and Corporate Innovation

Menghao Lin(✉)

School of Economics and Management, Beijing Jiaotong University, Beijing, China
347294896@qq.com

Abstract. Against the backdrop of comprehensively advancing the reform of mixed ownership, equity heterogeneity has been revisited and widely known. Heterogeneous equity is closely related to corporate innovation, and the emergence of agency problems makes the term of executives as an inevitable link between the two, and its role cannot be underestimated. This article studies the relationship between equity heterogeneity and corporate innovation based on analysis of sample data of A-share listed companies in Shanghai and Shenzhen from 2017 to 2019, and examine the moderating role of executives' tenure. Negative correlation, and this kind of negative correlation effect is more obvious in the state-owned enterprises, indicating that mixed equity participation has not played an active role in corporate innovation, private equity participation in the state-owned enterprises will have a negative effect on corporate innovation. At the same time, the regression results with executive tenure as the adjustment variable show that the negative correlation between the two will be affected by the executive tenure, and the executive tenure will positively adjust the relationship between the two. It is worth noting that differences in the nature of corporate property rights will result in differences in the relationship between equity heterogeneity, executive tenure, and corporate innovation. In private companies, equity heterogeneity is positively correlated with corporate innovation, but executive tenure is not significant, which needs to be further explored.

Keywords: Mixed Ownership Reform · Equity Heterogeneity · Corporate Innovation · Manager Tenure

1 Introduction

On November 12, 2013, at the Third Plenary Session of the 18th Central Committee of the Communist Party of China, it was clearly proposed to actively develop a mixed-ownership economy, and to encourage various types of capital to hold shares and integrate with each other. On September 13 and 24, 2015, the State Council successively issued the "Guiding Opinions on Deepening the Reform of State-owned Enterprises" (hereinafter referred to as the "Guiding Opinions") and the "Opinions on the Development of Mixed Ownership Economy by State-owned Enterprises" (hereinafter referred to as the "Opinions").), these two opinions, together with the decision of the Third Plenary Session of the 18th Central Committee, formed the top-level design and programmatic document

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of mixed ownership reform. The literature finds that the reform of mixed ownership is conducive to the positive development of corporate internal governance and operating efficiency [5].

In the process of continuing to promote mixed-ownership reform, the problem of equity heterogeneity has gradually emerged. Whether non-public capital participates in state-owned enterprises or private enterprises introduce public capital, the ownership structure has changed, resulting in equity heterogeneity. The need for equity heterogeneity and the impact of the existence of heterogeneity on the innovation advantage and vitality of enterprises have become the focus of debate in academia, industry and government departments. Innovation activities are different from general productive activities. They often have the characteristics of long investment cycle, high operational risk, large investment scale and heterogeneity [2]. It is found that the effect of equity checks and balances of companies with equity heterogeneity is much more obvious than that of non-existent companies, especially when the first largest shareholder and the second largest shareholder are of different nature [4]. The results of ownership heterogeneity tend to be two-fold. On the one hand, the vitality and power generated by the introduction of capital of different nature prompt enterprises to break the original regulations, absorb advanced concepts and ideas, learn from each other's strengths and make up for their weaknesses, and actively innovate; Passive dilution, chaos without actual controllers, passive innovation. In reality, both exist. The uncertainty and scale of this make equity heterogeneity a target of public criticism.

But in fact, under the hard shell of the ownership structure, it is the behavioral characteristics of the board of directors and management that really play a role. The existence of the principal-agent mechanism makes the incentive and supervision mechanism for the management particularly important. Enterprises should fully consider the impact of management characteristics, including executive tenure, executive compensation level, and executive shareholding ratio, on the innovation of enterprises in the heterogeneous ownership reform of mixed ownership. The "Guiding Opinions" and "Opinions" respectively require the implementation of tenure system and contractual management for professional managers. In addition, it will strictly manage its tenure and performance appraisal, and speed up the establishment of an exit mechanism. It can be seen that management characteristics, especially the tenure of executives, play an important role in corporate governance.

The innovation of this topic is mainly in the following two points: First, the cutting angle is unique. Due to the emergence of the background of mixed ownership reform, the association of heterogeneous equity on enterprise innovation presents a new influence mechanism. Second, see the big in the small. Under the general direction of management characteristics, there are many characteristics such as executive age, executive compensation, education level and so on. However, executive tenure is highly representative and correlated, which can help us study the moderating effect of ownership heterogeneity and corporate innovation in a more specific manner.

2 Theoretical Analysis and Research Hypothesis

The interests behind heterogeneous equity will not be as unified as that of homogeneous equity. The competition of various interest groups may make the decision and execution of the enterprise not fully implemented, and may become a drawback that hurts the value of the enterprise. If the heterogeneous equity cannot focus on the corporate value and have different interests, it will make it difficult for the company to move towards the maximization of the common shareholders' interests, which will not only make the vitality of the company's innovation not guaranteed, but also make it difficult for the company to innovate. Essentially blocked. Therefore, once a company has heterogeneous equity, it will have an impact on the original equity. At the same time, this phenomenon should obviously exist in state-owned enterprises, because state-owned enterprises focus on the special interests of the state and may not be able to take into account the interests of other small and medium shareholders. When private shares with a tendency to gain interests join, they will conflict with the operating motives of their own state-owned enterprises. Trying to obtain and maximize their own interests will cause internal chaos and hinder the normal innovation of state-owned enterprises. The more heterogeneous equity, the more heterogeneous the equity, the stronger the force of this obstacle will be, which will seriously interfere with corporate innovation. Based on this, suppose H1 proposes:

H1: Equity heterogeneity is negatively correlated with corporate innovation, that is, the higher the degree of equity heterogeneity, the lower the level of corporate innovation. And it will be more obvious in state-owned enterprises.

As the above theoretical analysis, based on its own limitations and different interests, heterogeneous equity will have a negative impact on corporate innovation. And executive tenure can have a further impact on this negative effect. Although the longer the tenure, the richer the experience, experience and knowledge of the executives. Knowing that they need to take a long-term perspective on the development of the enterprise will actively promote the innovation of the enterprise. However, the long tenure makes them have a firm foothold in the enterprise, and they believe that the impact on operation and management caused by the heterogeneous equity has nothing to do with them, and is not enough to pose a threat to their positions. The part of the heterogeneous equity may damage the innovation of the enterprise. Justified behavior doesn't matter. At the same time, the addition of heterogeneous equity means that more and different capitals will enter. The hidden temptation of potential interests will make executives feel that long tenure is the basis of the company's hard work and start to consider personal interests, so as to allow this confusion and further weaken the business innovation. Based on this, suppose H2 proposes:

H2: Executive tenure can positively moderate the relationship between equity heterogeneity and corporate innovation, that is, the longer the executive tenure, the more significant the negative effect of equity heterogeneity on corporate innovation.

3 Research Design

3.1 Sample Selection and Data Sources

Starting from equity heterogeneity and corporate innovation, this paper selects A-share listed companies on the main board of Shanghai and Shenzhen stock exchanges from 2017 to 2019 as research samples, and excludes financial and insurance companies, ST, *ST and listed companies with missing or unpublished data. After finishing and processing, a total of 4036 samples were obtained, and all continuous variables were winsorized.

3.2 Variable Definition and Model Building

Based on the data available, the main variables required in this paper are defined as follows:

This paper will use the explanatory variable enterprise innovation as the enterprise innovation investment (In), measuring by the level of enterprise innovation investment and the proportion of enterprise R & D investment in operating income [3].

In this paper, the explanatory variable heterogeneous equity is set as a dummy variable. On the premise that listed companies are classified as state-owned enterprises and private enterprises, after removing the controlling shareholders among the top ten shareholders (considering the existence of associations and concerted actions), they are divided into state-owned enterprises. Shares (state-owned legal person) and private shares (non-state-owned legal person and domestic natural person). If there is a phenomenon of share participation that is different from the property rights of the enterprise, it is called mixed participation (Mp). Therefore, we can think that the emergence of mixed equity participation can represent the existence of heterogeneous equity.

There has two different definitions of executive tenure: job tenure and job tenure [6]. The term of work is the period from the time when the executive enters the company to work until now, and the term of office is the time limit from when the executive takes the position of the company's executive. Generally, we use the term of office as the manifestation of the tenure of the executive. This paper defines the moderating variable of executive tenure as directors, supervisors, and senior managers in the enterprise, and takes the average of their tenures as the average tenure of corporate executives (Ten).

Drawing on the research and literature of scholars [1], this paper selects the size, capital structure (Lev), profitability (ROA), Growth opportunity (Growth), listing years (Age), year (Year) and industry (Industry) as control variables.

By reviewing the existing literature and the above research assumptions, in order to verify the intrinsic relationship between equity heterogeneity and corporate innovation, a multiple linear regression model (1) is constructed as follows:

$$\begin{aligned} In = \alpha_0 + \alpha_1 Mp + \alpha_2 Ten + \alpha_3 Size + \alpha_4 Lev + \alpha_5 ROA + \alpha_6 Growth + \alpha_7 State \\ + \alpha_8 Age + \sum Year + \sum Industry + \varepsilon \end{aligned} \tag{1}$$

In order to verify the moderating effect of executive tenure on the impact of equity heterogeneity on corporate innovation, a multiple linear regression model (2) is constructed as follows:

$$\begin{aligned} In = \beta_0 + \beta_1 Mp + \beta_2 Ten + \beta_3 Mp \times Ten + \beta_4 Size + \beta_5 Lev + \beta_6 ROA + \beta_7 Growth \\ + \beta_8 State + \beta_9 Age + \sum Year + \sum Industry + \varepsilon \end{aligned} \tag{2}$$

Table 1. Descriptive statistics for each main variable

Variables	Obs	Mean	Std. Dev.	Min	Max
In	4036	2.134	2.986	0.000	17.840
Mp	4036	0.533	0.499	0.000	1.000
Ten	4036	44.544	18.693	11.000	101.200
Size	4036	22.560	1.401	19.640	26.530
Lev	4036	0.465	0.209	0.066	0.940
ROA	4036	0.036	0.053	−0.183	0.191
Growth	4036	0.236	0.893	−0.592	7.170
State	4036	0.556	0.497	0.000	1.000
Age	4036	13.667	7.253	1.000	25.000

4 Empirical Analysis and Testing

4.1 Descriptive Statistics

Table 1 shows the descriptive statistical results of the main variables of the whole sample. From the analysis table, we can see that the average value of corporate innovation input (In) is 2.134, and the standard deviation is 2.986. The phenomenon of mixed participation (Mp) is relatively common, and its average value is 0.533, indicating that the companies with mixed participation and non-mixed participation basically account for half. The average tenure of executives (Ten) is 44.544 months, or 3.7 years, indicating that the tenure of executives in listed companies in my country is relatively short, and there is a phenomenon of frequent transfer. The standard deviation of asset-liability ratio (Lev), net profit ratio of total assets (ROA), operating income growth rate (Growth) and property rights (State) is small, which means that the distribution of control variable indicators for sample collection is reasonable, and there is no huge deviation. Abnormal situation.

4.2 Multiple Regression Analysis

Columns (1), (2), and (3) in Table 2 show the regression results of the full sample, state-owned enterprise grouping, and private enterprise grouping ownership heterogeneity and enterprise innovation under model (1). It can be seen that under the full sample, heterogeneous equity has a negative correlation with corporate innovation investment at the 5% significance level, but different situations appear in the grouping. In the grouping of state-owned enterprises, the negative correlation between the two has reached a significant level of 1%, indicating that in state-owned enterprises, private equity participation will lead to a decrease in innovation investment of enterprises. The reason may be that state-owned enterprises themselves are politically colored, which can form a strong competitive relationship between enterprises, the government and the market, but private equity participation will reduce state-owned shares and weaken their control and influence in enterprises.. At the same time, private shares will participate in shares

Table 2. Equity Heterogeneity and Corporate Innovation Regression Results

	(1)	(2)	(3)
Mp	−0.197**	−0.089***	0.343**
	(−2.21)	(−3.93)	(1.82)
Ten	0.016***	0.004	0.028***
	(7.77)	(1.59)	(6.47)
Size	0.159***	0.046	0.206***
	(4.54)	(1.28)	(2.65)
Lev	−1.848***	−1.268***	−3.345***
	(−7.63)	(−5.12)	(−6.66)
ROA	−4.209***	−2.710***	−7.374***
	(−5.04)	(−2.92)	(−4.55)
Growth	−0.102**	−0.164**	−0.017
	(−2.38)	(−2.45)	(−0.42)
State	−0.172*	–	–
	(−1.77)	–	–
Age	−0.055***	0.002	−0.118***
	(−5.54)	(0.25)	(−5.51)
Constant	−0.026 (−0.20)	−0.460*** (−3.04)	−0.009 (−0.05)
Industry & Year	Yes	Yes	Yes
Adj. R^2	0.385	0.487	0.321
Observations	4,036	2,246	1,790

out of a strong hollowing motive, which will further cause state-owned enterprises to lose the enthusiasm and necessity of part of their innovation investment, and instead develop in the direction of internal hollowing or encroachment by interests. Therefore, this paper assumes that H1 is verified, and equity heterogeneity is indeed negatively correlated with corporate innovation, and it is more obvious in state-owned enterprises.

Columns (4), (5), and (6) in Table 2 show the regression results of the full sample, state-owned enterprise grouping, private enterprise grouping ownership heterogeneity, executive tenure and corporate innovation under model (2). It can be seen that under the full sample, the cross item of heterogeneous equity and executive tenure is negatively correlated with corporate innovation investment at a significant level of 5%, indicating that executive tenure directly has a significant moderating effect on heterogeneous equity and corporate innovation investment., because the main effect of equity heterogeneity on enterprise innovation is negative, and the regression coefficient is negative, which is a positive moderating effect, that is, when the tenure of executives is longer, the innovation

Table 3. Equity heterogeneity, executive tenure and corporate innovation regression results

	(4)	(5)	(6)
Mp	−0.521**	−0.020	0.145
	(−2.43)	(−0.07)	(0.31)
Ten	0.020***	0.005	0.026***
	(6.76)	(1.06)	(5.25)
Mp × Ten	−0.017**	−0.016**	−0.004
	(−2.67)	(−2.27)	(−0.47)
Size	0.153***	0.046	0.208***
	(4.36)	(1.28)	(2.67)
Lev	−1.846***	−1.269***	−3.344***
	(−7.63)	(−5.12)	(−6.66)
ROA	−4.087***	−2.724***	−7.480***
	(−4.88)	(−2.93)	(−4.57)
Growth	−0.105**	−0.164**	−0.016
	(−2.47)	(−2.46)	(−0.39)
State	−0.185*		
	(−1.90)		
Age	−0.056***	0.002	−0.117***
	(−5.61)	(0.24)	(−5.50)
Constant	−0.370*** (−3.46)	−0.095 (1.16)	−0.064 (−0.55)
Industry & Year	Yes	Yes	Yes
Adj. R^2	0.347	0.322	0.392
Observations	4,036	2,246	1,790

investment of enterprises with heterogeneous equity will be lower. This is consistent with our hypothesis H2.

Although executives improve their abilities in all aspects as tenure increases, proposing new strategies or changing old strategies, they may undermine the interests of heterogeneous equity and be hindered by it. Due to this invisible resistance, the innovative behaviors promoted by executives will also be limited, resulting in a reduction in corporate innovation investment. Due to the existence of heterogeneous equity, it will lead to stricter external supervision and higher requirements for executives. Executives with longer tenures have already been screened, and they no longer need to produce innovative results to prove, and under the pressure of external supervision, they will tend to reduce innovation investment and reduce innovation risks to continue to maintain their excellent performance. At the same time, according to the descriptive statistics above, the average tenure of executives is only 3.7 years, which is generally short. The term we are discussing here can only be longer in a relative sense, and we cannot test the impact of an absolute long term (Table 3).

5 Conclusion

After collecting, arranging and analyzing the financial data and executive tenure of listed companies on the main board of my country's Shanghai and Shenzhen stock exchanges from 2017 to 2019, this paper draws the following conclusions:

(1) The relationship between equity heterogeneity and corporate innovation as a whole There is a significant negative correlation between top management and state-owned enterprises.
(2) the negative correlation between ownership heterogeneity and enterprise innovation is affected by the tenure of executives, and the positive moderating effect is significant in the overall and state-owned enterprises.

The essence of introducing heterogeneous equity is to stimulate vitality and promote development. How to enlarge its advantages and reduce its disadvantages so as to actively promote enterprise innovation is the top priority. Private equity participation in state-owned enterprises should pay attention to the problems of "loss of state-owned assets" and "release of resources", appropriately introduce market competition, improve their own competitiveness awareness and ability, and stimulate innovation vitality and innovation interest. State-owned shares and private companies should pay attention to the problem of "absorbing resources", and must absorb, digest and utilize the resources oriented by state-owned shares.

It should be noted that, due to various limitations, the first judgment of equity heterogeneity is based on the simplification of the mixed participation of state-owned shares and private shares, and dummy variables are set up. Second, the differences between Chinese state-owned enterprises and private enterprises in the sample will be an important direction for further discussion in the future.

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