The Influence of Executives' Overseas Background on Corporate Innovation Performance——Based on the Heterogeneity of Innovation Motivation

Yuewen Jiang

School of economics and finance, Huaqiao University, Quanzhou 362021 China

Abstract: As a scarce resource, overseas executives are playing a crucial role in the implementation of innovation-driven strategy. Based on the perspective of the heterogeneity of innovation motivation, this paper uses the data of Chinese A-share listed companies from 2008 to 2020 to empirically examines the impact and mechanism of executives' overseas background on corporate substantive innovation and strategic innovation. It is found that executives' overseas background can promote corporation innovation, especially substantive innovation performance. The influence mechanism test depicts that the overseas background of executives improves corporate innovation by suppressing managerial shortsightedness and improving the quality of internal control. Further analysis shows executives' overseas background can improve the innovation performance of growth and mature enterprises, especially the substantial innovation performance, while there is no significant impact on companies in recession. Market competition can enhance the role of executives' overseas background in promoting corporation innovation, especially substantive innovation performance.The research conclusions provide a reference for companies to hire overseas executives in a timely manner and promote innovation-driven strategies.

Keywords: Executives' overseas background; Substantive innovation; Strategic innovation; Managerial shortsightedness; Internal control

1. Introduction

As our country shifts from demographic dividend-driven to innovation-driven high-quality economic development, strengthening international operations and the introduction of high-quality talents is an inevitable requirement to enhance my country's core competitiveness and rank among the forefront of innovative countries. President Xi Jinping clearly put forward the important thesis that "development is the first priority, talent is the first resource, and innovation is the first driving force", which further emphasizes the organic unity of talent construction, innovation-driven and high-quality development. In recent years, with the continuous improvement of the economic situation and the increasingly significant effect of epidemic control, our country's siphon power for talents has been continuously strengthened. The "2020 China Returnee Employment and Entrepreneurship Survey Report" showed that the number of returnees seeking jobs in China in 2020 would increase by 33.9% year-on-year. Moreover, the quality of returnees would be increasingly optimized and there presented a trend of job seekers to be younger and more knowledgeable[1]. In this context, can the technical advantages and knowledge skills of returnee executives really play an important role in promoting the innovation-driven development strategy?

Upper echelons theory holds that executives, as an important human capital, will directly affect the innovation performance of enterprises by their ability to allocate innovation resources, their risk-taking characteristics, and their cognitive structure and values[2]. Based on resource dependence theory, imprinting theory, cross-cultural theory, and principal-agent theory as well, existing research has revealed the human capital and social network advantages of returnee executives, the spillover effect of knowledge and technology, and the competitive effect[3][4][5], reaching the conclusion that executives' overseas background differences[6], the demographic characteristics of returnee executives[7] and the heterogeneity of executive teams[8], etc. do enhance corporate innovation performance. Moreover, they further researched the moderating effect of situational factors such as executive stock ownership[4], salary gap[9] and political connection[10] in this process. However, with increasingly deeper research, many scholars have also discovered that overseas executives may

have the "acclimatization effect"[7] that they are not familiar with the local market and institutional environment, as well as the "cultural conflict effect" with local executives[11], thus hindering the progress of innovation activities. So executives' overseas background is not simply positively related to the innovation performance of enterprises. At the same time, most of the current research focuses on the division of executives' overseas background characteristics and the exploration of contextual factors, while ignoring the richness of innovation connotation. Whether executives' overseas backgrounds have a differential impact on different types of innovation activities remains to be studied.

Therefore, based on the perspective of the heterogeneity of innovation motivation, this paper uses the data of Chinese A-share listed companies from 2008 to 2020 to empirically test the heterogeneous impact of executives' overseas background on different types of innovation and its detailed mechanism. Also, according to enterprise life cycle theory and competition theory, this paper explores the influence of different introduction stages of overseas executives and the degree of market competition on the relationship. The research results show that executives' overseas background can significantly improve corporate innovation performance, especially substantive innovations. Influence mechanism test illustrates that the overseas background of executives promotes enterprise innovation by suppressing managerial shortsightedness and improving the quality of internal management. At the same time, this paper finds that only introducing overseas executives in the growth and mature stages can promote corporate innovation, especially the improvement of substantive innovation performance, while there is no significant impact on companies in recession owing to problems like resource constraints and serious principal-agent problems. In a fierce market competition environment, the overseas background of executives can better promote enterprises' risk-taking, reduce information asymmetry and thus encourage enterprises to engage in high-quality substantive innovation activities.

This paper may have the following marginal contributions: (1) Different from previous research's division of overseas background heterogeneity and demographic characteristics, this paper, based on the perspective of innovation motivation heterogeneity, examines the impact of executives' overseas background on substantial innovation and strategic innovation, which further enriches the research on the relationship between returnee executives and corporate innovation. (2) This paper incorporates managerial shortsightedness and internal control into logical analysis framework and examines the mediating effect of them in executives' overseas background and corporate innovation performance relationship, thus revealing the influence mechanism respectively. Combined with "halo effect" and demonstration effect of overseas executives, the study of antecedent variables of managerial shortsightedness has been deepened to a certain extent. (3) This paper also examines the differential impact of the heterogeneity of the enterprise life cycle and the degree of market competition on the relationship between the overseas background of executives and the substantive innovation and strategic innovation, providing a reference for enterprises to hire overseas executives in a timely manner and better promote the long-term sustainable development in combination with their own development stages and the external environment. (4) Research conclusions provide theoretical guidance for giving full play to the innovation leading role of overseas executives, strengthening innovation-driven strategies and promoting our country's high-quality economic development.

2. Literature review and research hypothesis

Based on the theory of resource dependence, overseas executives, as a scarce resource, are beneficial to enterprises and can bring potential competitive advantages to enterprises to a certain extent. Feng Xiaohong and Liu Yibing (2022), starting from upper echelons theory and social capital theory, found that returnee executives have dual social capital advantages, which can increase the level of R&D investment of enterprises by increasing the slack of resources, further highlighting the importance of human capital for corporate technological innovation[12]. Luo Siping and Yu Yongda (2012) took photovoltaic enterprises as an example to show that returnee talents, as an important

carrier of international technology transfer, can promote technological innovation of enterprises and produce certain technology spillover effects on surrounding enterprises[3]. Batjargal B (2007) believes that executives with overseas backgrounds in developed countries have a broader international vision and are more aware of the realistic gap between developed and developing countries in terms of economy and technology, which can bring greater technological advantages to enterprises[13]. From the perspective of information asymmetry, the overseas background of executives sends a signal to the outside world that they are determined to forge ahead and actively innovate, which reduces the capital cost of enterprises[14]. Therefore, the introduction of executives with overseas backgrounds can produce a resource agglomeration effect, providing enterprises with high-quality human capital and social capital, advanced knowledge and technology and more sources of funds. It can ease resource constraints in the process of innovation from the perspectives of human, material and financial resources, thus improving the innovation performance of enterprises.

In addition, due to the "halo effect" of overseas executives, their way of thinking and value concepts will further promote innovation activities by influencing the risk aversion and short-term orientation of other executives in the company. Due to the high uncertainty and high failure rate of innovation activities, it is easy for enterprises to be underestimated and receive hostile acquisitions. So managers tend to invest in more conventional projects with shorter investment cycles and lower uncertainty, which is so-called managerial shortsightedness in the field of innovation[14]. After the introduction of overseas executives, due to the influence of Western individualism culture, they tend to pay more attention to the realization of self-achievement and have a higher risk-taking tendency and failure tolerance, which offers guidance and incentives to the innovation willingness of local executives. Gan Weiyu and Liu Man (2022) pointed out that in decision-making and daily communication, returnee executives can subtly and positively demonstrate to other executives' innovative error tolerance and risk-taking behavior, forming a diffusion effect and driving innovation decisions[15]. The research of Zheng Mingbo (2019) also shows that by absorbing returnee executives, the diversification of the executive team can be improved and the executive team can be more able to withstand the failure of innovation in the short term, effectively alleviating managerial shortsightedness of technological innovation, and thus promote the enterprise's technological innovation decision-making. carried out[6]. At the same time, owing to different social and cultural environments, there may be emotional and cognitive conflicts between overseas executives and local executives[7]. The avoidance of innovation risks by local executives is likely to be objected and boycotted by overseas executives with high innovation willingness. It can be seen that executives with overseas backgrounds can suppress the short-sighted behavior of management focusing on short-term performance and crowding out innovative R&D funds through behavioral risk-taking effect, demonstration effect and multicultural conflict.

Finally, executives with overseas backgrounds can introduce scientific management models, promote the improvement of internal management quality and risk-taking ability of enterprises, and create a good innovation environment for enterprises. From the perspective of information disclosure, returnee executives tend to choose accounting firms with industry expertise and international reputation as internal control auditors, which is the icing on the cake for corporate governance[16]. From the perspective of risk taking, overseas executives influenced by individualistic culture have higher risk appetite and are more able to adapt to changing environments[17].Moreover, executives with overseas backgrounds can help domestic companies follow stricter corporate governance standards, alleviate the company’s principal-agent problems and excessive investment behavior[18], and “graft” the advanced governance mechanisms of overseas companies to their companies to optimize the corporate governance structure and mechanism and improve the transformation efficiency of external innovation resources[19].

Based on the above analysis, this paper proposes the following assumptions:

H1：When other conditions remain unchanged, the overseas background of executives is positively correlated with corporate innovation performance.

3. Research design

(1)Sample selection and data sources

In order to study the impact of executives' overseas background on corporate innovation performance, this paper takes 2008-2020 Chinese A-share listed companies as the research sample and conducts the following sifting: (1) Exclude financial listed companies; (2) Exclude ST and *ST companies; (3) Remove samples with missing and abnormal data; (4) Remove samples with missing or ambiguous executive information. To avoid the influence of extreme values, all continuous variables are shortened by 1% up and down, and finally 27950 sample observations are obtained. The data required for this study were all obtained from the CSMAR and Wind databases.

(2)Variable definition and measurement

1. Explained variable: enterprise innovation ($Patent$). Referring to the practice of Li Wenjing and Zheng Manni (2016)[20], this paper uses the number of patent applications to measure the innovation ability of enterprises and adds 1 to take the natural logarithm. According to the different motivations for innovation, it is further divided into substantive innovation ($Patenti$) and strategic innovation ($Patentud$).

2. Explanatory variable: overseas background of executives ($Oversea$). This variable is defined as the proportion of executives with overseas backgrounds in the total number of executives. In the robustness test, the dummy variable ($Oversea2$) is used to measure the overseas background of executives. If at least one member of the executive team has overseas study or work experience, the dummy variable takes the value of 1, otherwise it is 0.

3. Control variables: Based on the existing literature, the control variables selected in this paper include company size ($Size$), company age (Age), return on assets (Roa), debt-to-asset ratio (Lev), operating income growth rate ($Growth$), executive team size ($Tsize$), shareholding ratio of the largest shareholder ($ShareRatio$), independence of the board ($Indp$), annual dummy variables ($Year$), industry dummy variables (Ind). The specific variable definitions are shown in Table 1.

Table1 Variable Definition and Meaning

variable type	variable name	variable symbol	variable definition
Explained variable	Innovation performance	$Patent$	The natural logarithm of the total number of applications for invention patents, utility models and design patents plus 1
	Substantive innovation	$Patenti$	The natural logarithm of the number of applications for invention patents plus 1
	Strategic innovation	$Patentud$	The natural logarithm of the total number of applications for utility models and design patents plus 1
Explanatory variable	Executive's overseas background	$Oveasea$	The number of executives with overseas background divided by the whole executives
		$Oversea2$	If there exists at least one member of the executive team with overseas study or work experience, the dummy variable takes the value of 1, otherwise it is 0.
Control variables	Company size	$Size$	The natural logarithm of the company's total assets at the end of the period
	Company age	Age	The natural logarithm of the gap of observation year minus the listing year plus 1
	Return on assets	Roa	Net profit divided by total assets
	Debt-to-asset ratio	Lev	Total liabilities divided by total assets
	Operating income growth rate	$Growth$	The number of this year's operating income minus the previous year's operating income divided by the previous year's operating income
	Executive team size	$Tsize$	Total number of senior management team
	Shareholding ratio of the largest shareholder	$ShareRatio$	The number of shares held by the largest shareholder divided by the total number of shares
	Independence of the board	$Indp$	Number of independent Directors divided by number of board
	Year	$Year$	Dummy variable
	Industry	Ind	Dummy variable

Model construction

Referring to the practice of existing research, this paper constructs the following model:

$$Patent_{i,t} = \beta_0 + \beta_1 Oversea_{i,t} + \beta_2 Controls_{i,t} + \sum Year + \sum Ind + \varepsilon_{i,t} \quad ...(1)$$

This model is used to examine the relationship between the overseas background of executives ($Oveasea$) and corporate innovation($Patent$). If β_1 is significantly positive, it indicates that the overseas background of executives ($Oveasea$) can have a positive impact on corporate innovation performance ($Patent$), then the hypothesis H1 is established. Based on this, replace $Patent$ with $Patenti$ and $Patentud$ to further verify the impact of executives' overseas background ($Oveasea$) on the substantive innovation ($Oveasea$) and strategic innovation ($Patentud$) of the company.

4. Empirical analysis

(1) Descriptive statistics

The descriptive statistics of the variables are shown in Table 2. The mean value of innovation and the median is 2.335 and 2.398 respectively, which indicates that Chinese enterprises still have insufficient innovation ability. What's more, the mean value of substantive innovation of enterprises is lower than that of strategic innovation, indicating that most enterprises in our country are driven by seeking policy subsidies to innovate, or have a tendency to avoid risks so that rarely engage in substantive innovations that can significantly enhance the value of enterprises. At the same time, the minimum and maximum values of these three variables varied a lot, indicating that there are significant differences in innovation performance among different enterprises. The average value of executives with overseas backgrounds is 0.0740, indicating that there are relatively few listed companies employing executives with overseas backgrounds. The average value of the return on assets is 3.80% and the average value of the asset-liability ratio is 43.9%, indicating that the profitability of the enterprise is average and the asset-liability ratio is relatively high. The average size of the executive team is 6 people generally and relatively small. The average shareholding ratio of the largest shareholder is 35.06%, and the minimum and maximum values are 8.735% and 74.86% respectively, indicating that different companies have significant difference in ownership concentration. The mean of the proportion of independent directors is 0.374, indicating that the board structure of the sample companies is relatively reasonable.

Table 2 Descriptive statistics of variables

Variable	Number	Mean	SE.	Medium	Min	Max
Patent	27950	2.323	1.758	2.398	0	6.628
Patenti	27950	1.583	1.494	1.386	0	5.814
Patentud	27950	1.860	1.657	1.792	0	6.071
Oversea	27950	0.0750	0.0970	0.0590	0	0.444
Size	27950	22.05	1.305	21.86	19.58	26.07
Age	27950	2.783	0.379	2.833	1.386	3.466
Roa	27950	0.0410	0.0560	0.0390	-0.216	0.197
Lev	27950	0.425	0.212	0.416	0.0490	0.923
Growth	27950	0.180	0.461	0.105	-0.582	3.109
Tsize	27950	6.366	2.287	6	2	14
ShareRatio	27950	35.28	14.95	33.36	8.794	74.97
Indp	27950	0.374	0.0530	0.333	0.333	0.571

(2)Regression analysis

Table 3 lists the regression results of executives' overseas background ($Oversea$) and firm innovation performance ($Patent$). The results show that the regression coefficients of executives' overseas background ($Oversea$) and corporate innovation performance ($Patent$), substantive

innovation (*P*atenti) and strategic innovation (*P*atentud) are all significantly positive at the 1% level, indicating that the introduction of executives with overseas backgrounds (*Oversea*) can have a positive promotion effect on either an enterprise's overall innovation performance (*P*atent) or the substantive innovation (*P*atenti) and strategic innovation (*P*atentud), H1 being verified. At the same time, through the comparison of the regression coefficients of model (2) and model (3), it is found that overseas executives (*Oversea*) have a more significant role in promoting the substantive innovation of enterprises (*P*atenti), thus better promoting the improvement of corporate value.

Apart from executive's oversea background (*Oversea*), there are other factors could influencing corporate innovation(*P*atent). In terms of the control variables， corporate size(*Size*),returns on assets(*Roa*), operating income growth rate(*Growth*)are all positively correlated with corporate innovation(*P*atent), which is probably because with the growth of size， operating income and profitability have improved a lot， thus possessing the capital foundation of innovation activities. The coefficient between corporate age(*Age*)and innovation(*P*atent)is remarkably negative at 1% level， indicating that with the increasing maturity, corporate innovation performance (*P*atent 、 *P*atenti) is on the decline. Debt-to-asset ratio(*Lev*)is significantly negative to corporate and substantive innovation at 1% level while there is no significant effect on strategic innovation(*P*atentud), probably because the weakness of the ability to repay corporate debt is likely to cause operating risk, thus executives tend to avoid riskier innovation activities. The shareholding ratio of the largest shareholder (*ShareRatio*) is negatively correlated with corporate innovation performance (*P*atent) at the level of 1%, while the proportion of independent directors (*Indp*) significantly promotes corporate innovation (*P*atent), indicating that the quality of internal control of an enterprise will directly affect the output of innovation. The higher the ownership concentration, the stronger the control ability of major shareholders over the enterprise, and the more likely to appear short-sighted phenomenon of ignoring innovation in order to seek short-term performance. And independent directors' supervision will inhibit the possibility of shortsightedness.

Table 3 Executives' overseas background and corporate innovation

Explanatory variables	*P*atent	*P*atenti	*P*atentud
	Model (1)	Model (2)	Model (3)
Oversea	0.533***	0.569***	0.284***
	(6.163)	(7.174)	(3.369)
Size	0.518***	0.467***	0.452***
	(60.411)	(59.782)	(55.033)
Age	-0.227***	-0.143***	-0.192***
	(-9.226)	(-6.473)	(-8.048)
Roa	1.919***	1.412***	1.657***
	(12.270)	(10.416)	(11.012)
Lev	-0.175***	-0.211***	0.0450
	(-3.485)	(-4.874)	(0.938)
Growth	0.029*	0.052***	0.0220
	(1.723)	(3.575)	(1.403)
Tsize	0.044***	0.039***	0.031***
	(11.924)	(11.590)	(8.557)
ShareRatio	-0.003***	-0.004***	-0.001**
	(-5.515)	(-7.458)	(-2.106)
Indp	0.248*	0.334**	0.2050
	(1.646)	(2.439)	(1.402)
Cons	-10.325***	-9.711***	-9.303***
	(-53.906)	(-55.239)	(-50.641)
Year	Yes	Yes	Yes
Ind	Yes	Yes	Yes
N	27950	27950	27950
r^2_a	0.4590	0.4030	0.4250

Notes: t values in parentheses, ***, **, * represent the significance levels at 1%, 5% and 10%, respectively, the same below.

(3)Robustness test

1. Replace explanatory variable

There are two main ways to measure the overseas background of executives ($Oversea$): (1) the number of overseas executives divided by total number of executives, which is the measurement method used in the benchmark regression in this paper; (2) the dummy variable measurement method. If there is an executive with an overseas background, it is recorded as 1, otherwise it is recorded as 0. In order to ensure the reliability of the research results, the dummy variable of overseas executives will be used as a substitute variable and named as $Oversea2$ to make a regression again. The results are shown in Table 4. It can be seen from the regression results that the overseas background of executives ($Oversea2$) is positively significant at the level of 1% and the regression coefficient (β1=0.089, p=0.01) with substantive innovation ($Patent$) is higher than that with strategic innovation ($Patenti$) regression coefficient (β1=0.077, p=0.01), indicating that the overseas background of executives ($Oversea2$) can indeed significantly promote corporate innovation performance ($Patent$) and the promotion effect on substantial innovation ($Patenti$) of "high risk, high investment, high return" is more obvious. It's the same regression results as the previous ones, which proves that the research results of this paper are relatively robust.

Table 4 Regression results after replacing explanatory variables

Explanatory variables	*Patent*	*Patenti*	*Patentud*
	Model (1)	Model (2)	Model (3)
Oversea2	0.108***	0.089***	0.077***
	(6.770)	(6.284)	(4.954)
Cons	-10.340***	-9.744***	-9.298***
	(-54.018)	(-55.434)	(-50.644)
Controls	Yes	Yes	Yes
Year	Yes	Yes	Yes
Ind	Yes	Yes	Yes
N	27950	27950	27950
r^2_a	0.4590	0.4020	0.4250

Excluding the impact of the financial crisis and the novel coronavirus

In 2008, an economic crisis broke out across the world, the social economy was generally depressed and the currency depreciated sharply, which had a significant impact on corporate innovation activities and even corporate operations. At the beginning of 2020, the novel coronavirus swept the world, economic growth slowed down and business operations were difficult, most of which faced the risk of loss and bankruptcy and innovation activities were unsustainable. Therefore, this paper removes the data from 2008-2009 and 2020 to conduct regression analysis again and the results are shown in Table 5. In the three models, the regression coefficients of executives' overseas background ($Oversea$) are all negatively significant at the 1% level, which verifies the hypothesis H1 again.

Table 5 Regression results after excluding the impact of the financial crisis and the novel coronavirus

Explanatory variables	*Patent*	*Patenti*	*Patentud*
	Model (1)	Model (2)	Model (3)
Oversea	0.472***	0.521***	0.227***
	(5.274)	(6.281)	(2.610)
Cons	-10.474***	-9.993***	-9.464***
	(-51.467)	(-52.864)	(-48.670)
Controls	Yes	Yes	Yes
Year	Yes	Yes	Yes
Ind	Yes	Yes	Yes
N	25252	25252	25252
r^2_a	0.4510	0.3960	0.4210

5. Further analysis

(1) Influence Mechanism Analysis

The empirical results of this paper show that the higher the proportion of executives with overseas backgrounds ($Oversea$), the more they can promote corporate innovation ($Patent$), then what is the internal impact mechanism of executives' overseas background ($Oversea$) on corporate innovation performance ($Patent$)? According to the previous theoretical logic, this paper will construct the following mediation effect model from the perspectives of managerial characteristics and enterprise management by incorporating management shortsightedness ($Short$) and enterprise internal control ($InControl$).

$$Short_{i,t} = \beta_1 + \beta_2 Oversea_{i,t} + \beta_3 Controls_{i,t} + \sum Year + \sum Ind + \varepsilon_{i,t} \quad ...(2)$$

$$Patent_{i,t} = \gamma_1 + \gamma_2 Oversea_{i,t} + \gamma_3 Short_{i,t} + \gamma_4 Controls_{i,t} + \sum Year + \sum Ind + \varepsilon_{i,t} \quad ...(3)$$

$$InControl_{i,t} = \beta_1 + \beta_2 Oversea_{i,t} + \beta_3 Controls + \sum Year + \sum Ind + \varepsilon_{i,t} \quad ...(4)$$

$$Patent_{i,t} = \gamma_1 + \gamma_2 Oversea_{i,t} + \gamma_3 InControl_{i,t} + \gamma_4 Controls_{i,t} + \sum Year + \sum Ind + \varepsilon_{i,t} \quad ...(5)$$

Impact of managerial shortsightedness on overseas executives and innovation performance

The imprint theory holds that, influenced by Western individualistic culture, executives with overseas backgrounds tend to show higher risk appetite and risk-taking characteristics[15], have a broader international vision and are more aware of the reality gap between developed and developing countries[13],which makes it more inclined to increase investment in innovation in the decision-making process and restrain managers from blindly pursuing short-term performance. Referring to the research of Luo Kun (2020)[21] , this paper uses the proportion of current short-term investment in total assets at the beginning of the period to measure management's shortsightedness ($Short$), of which short-term investment is measured with the sum of trading financial assets, net available-for-sale financial assets, net held-to-maturity investment. As is shown in Table 6, executives' overseas background ($Oversea$) and management's shortsightedness ($Short$) are negatively significant at the 1% level, indicating that executives' overseas background ($Oversea$) will inhibit management's short-sighted behavior ($Short$). According to model (2), the coefficients of executives' overseas background ($Oversea$) and management's shortsightedness ($Short$) are significant at the levels of 1% and 10% respectively, indicating that executives' overseas background ($Oversea$) can improve corporate innovation performance($Patent$)by suppressing management's shortsightedness ($Short$).

Table 6 Analysis of influence mechanism

Explanatory variables	Mediating Variable: Managerial shortsightedness		Mediating Variable: Internal control	
	Model (1) *Short*	Model (2) *Patent*	Model (3) *InControl*	Model(4) *Patent*
Oversea	-0.014*** (-3.824)	0.829*** (6.718)	17.159** (2.151)	0.540*** (5.960)
Short		-0.406* (-1.904)		
InControl				0.001*** (10.519)
Cons	-0.079*** (-9.141)	-9.213*** (-34.584)	75.673*** (3.645)	-10.266*** (-51.495)
Controls	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Ind	Yes	Yes	Yes	Yes
N	15310	15310	25802	25802
r^2_a	0.0610	0.4310	0.2210	0.4700

Impact of internal control on overseas executives and innovation performance

Due to the knowledge diffusion effect, overseas executives can better "graft" the advanced governance mechanism of overseas companies to their enterprises, optimize the corporate governance structure and mechanism and improve the transformation efficiency of external innovation resources of the enterprise[19]. Referring to the practice of most research, this paper uses the internal control index to measure the quality of enterprise internal control ($InControl$). As is shown in Table 6, it can be seen that at the level of 5%, the overseas background of executives ($Oversea$) and the internal control index ($InControl$) of the company are positively significant, indicating that the overseas background of executives ($Oversea$) can significantly improve the quality of corporate internal control ($InControl$) . In model (4), the overseas background of executives ($Oversea$) and corporate internal control ($InControl$) are both positively significant with corporate innovation ($Patent$) at the level of 1% , indicating that internal control ($InControl$) plays a partial mediating effect on the influence of executives' overseas background ($Oversea$) on firm innovation performance ($Patent$).

Heterogeneity Analysis

1、Enterprise life cycle heterogeneity

Contingency theory points out that enterprises have different innovation intensities and needs in different life cycle stages. In order to explore whether the introduction of overseas executives ($Oversea$) in different periods will have a heterogeneous impact on corporate innovation performance ($Patenti$ 、 $Patentud$), this paper introduces dummy variables and divides the sample into growth, maturity and recession period according to the development stage of the company. The regression results are shown in Table 7.

The results show that the overseas background ($Oversea$) of executives only has a positive effect on corporate innovation ($Patenti$ 、 $Patentud$) in the growth and maturity stages, but has no significant impact on the enterprises in the recession period. The possible reason is that although the market size in the growth stage is small and enterprises face greater financing constraints, it has more investment opportunities[22], its strong innovation motivation and willingness to invest in research and development will make the the " The resource effect" brought by returnee executives more significant. With the continuous improvement of enterprise maturity, enterprises accumulate a certain capital and technical foundation, showing a high level of risk-taking, and the collaborative innovation of overseas executives and local executives become possible. When an enterprise enters the recession period, the internal system becomes rigid and shows great organizational inertia, and the principal-agent problem is even more serious than any time[23]. At this time, even the introduction of overseas executives will not help and may even lead to a substantial increase in operating costs.

After further subdividing according to the purpose of innovation, it is found that whether in the growth stage or the mature stage, the overseas background of executives ($Oversea$) has a more significant role in promoting the substantive innovation ($Patenti$) than the strategic innovation ($Patentud$). It is possibly because growing companies have greater demand for innovation and are more willing to believe in the "halo effect" of overseas executives to seize market share with high-quality substantive innovation. However, when in maturity period, owing to the management experience accumulated by native executives in the early stage, coupled with the intensification of the principal-agent problem and the existence of the management's shortsightedness, the local executives are more pursuing stable short-term investment, thus forcing the overseas executives to shift part of their energy to strategic innovation ($Patentud$) activities .

Table 7 Enterprise life cycle heterogeneity

Explanatory variables	*Patenti*	*Patentud*	*Patenti*	*Patentud*	*Patenti*	*Patentud*
	Model (1) Growth stage	Model (2) Growth stage	Model (3) Mature stage	Model(4) Mature stage	Model(5) Recession stage	Model(6) Recession stage
Oversea	1.001*** (6.738)	0.303* (1.958)	0.714*** (5.146)	0.471*** (3.164)	0.155 (1.229)	0.134 (0.986)
Cons	-8.539*** (-23.316)	-8.265*** (-21.153)	-10.489*** (-34.080)	-9.670*** (-30.318)	-9.995*** (-36.730)	-9.684*** (-34.129)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Ind	Yes	Yes	Yes	Yes	Yes	Yes
N	6851	6851	8938	8938	12111	12111
r^2_a	0.3990	0.4250	0.4140	0.4340	0.4020	0.4220

2、Market competition heterogeneity

As an important external corporate governance mechanism, market competition will have an important impact on the innovation decision-making of enterprises. Therefore, this paper will start from the two dimensions of substantive innovation (*Patenti*) and strategic innovation (*Patentud*) to explore the impact of market competition heterogeneity on the relationship between executives' overseas background and corporate innovation performance. This paper uses the HHI index to measure the degree of market competition. The higher the value of HHI, the higher the industrial concentration and the smaller the degree of market competition. Therefore, the HHI index higher than the median HHI is defined as the low market competition group while the HHI index lower than the median of HHI is defined as the high market competition group. As is shown in Table 8, the coefficients are all positive and the significance and absolute value of the regression coefficient of executives' overseas background (*Oversea*) in the high market competition group are higher than those in the low market competition group, indicating that fierce competition promotes the positive correlation between the overseas background (*Oversea*) on corporate substantive innovation (*Patenti*) and strategic innovation (*Patentud*) and the promotion of substantive innovation (*Patenti*) with high risk and high innovation premium is more significant. The possible reasons are as follows: (1) The competition mechanism of the market makes enterprises take risks more actively. In order to avoid the threat of being preempted of market share, enterprises will increase investment in innovation, research and develop new products and promote overseas executives and local companies to make decisions more beneficial to corporate long-term development. Executives make decisions that are more in the long-term interests of the business. (2) Market competition can make information easier to obtain, thereby strengthening shareholders' supervision of managers[28], alleviating the problem of principal-agent within the enterprise to a certain extent and inhibiting the occurrence of shortsightedness of management.

Table 8 Market competition heterogeneity

Explanatory variables	*Patenti*	*Patentud*	*Patenti*	*Patentud*
	Model (1) Low market competition	Model (2) Low market competition	Model (3) High market competition	Model(4) High market competition
Oversea	0.253** (2.263)	0.219* (1.799)	0.773*** (7.066)	0.292** (2.532)
Cons	-9.138*** (-37.161)	-8.682*** (-34.932)	-10.803*** (-42.719)	-10.330*** (-37.041)
Controls	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes
Ind	Yes	Yes	Yes	Yes
N	13970	13970	13980	13980
r^2_a	0.4260	0.4660	0.3980	0.3880

6. Research Conclusions and Implications

Using the data of Chinese A-share listed companies from 2008 to 2020 as a sample, this paper examines the impact of executives' overseas background on corporate innovation performance and divides corporate innovation into substantive innovation and strategic innovation for further research. The study found that: (1) The overseas background of executives can have a positive impact on enterprise innovation, especially substantive innovation; (2) The overseas background of executives can promote corporate innovation by inhibiting managers' shortsightedness and improving the quality of corporate internal control; (3) The overseas background of executives only has a positive role in promoting corporate innovation in the growth and mature stages, but has no significant impact on companies in the recession stage. Further analysis found that in the growth and maturity stages, the overseas background of executives has a higher role in promoting the substantive innovation than the strategic innovation; (4) In the fierce market competition environment, the overseas background of executives can better promote the enterprise substantive innovation and strategic innovation.

The analysis results of this paper may have the following policy implications and micro-suggestions: First, for enterprise managers, they should fully realize the importance of overseas executives in improving the innovation performance of enterprises and should actively learn the knowledge and skills from executives with overseas backgrounds, giving full play to the "resource effect" and improving the core competitiveness of the enterprise; Avoid managerial shortsightedness pursuing short-term interests and ignoring the innovation investment that is conducive to the long-term sustainable development of the enterprise, especially when it can bring innovation advantages at a premium; Improve the management's ability to self-assess internal control and strengthen the internal training mechanism for executives and the construction of efficient communication channels, which will contribute to building an internal control environment conducive to innovation activities; Bear it in mind that in different life cycle, there are differences in the resource endowments, capabilities and problems faced by enterprises. So only through introducing overseas executives in a timely manner according to their own development stages could they really enhance the dynamic capabilities and promote innovation performance.

Secondly, for the government, it should actively implement the strategy of "powering the country with talents", fully mobilizing the enthusiasm and creativity of various talents such as returnee executives and strengthening the leading role of executives with overseas backgrounds in corporate innovation, especially substantive innovation. At the same time, strengthen the external supervision of the short-sighted behavior of enterprise management, restrain the occurrence of self-interested behavior of management and give incentives to enterprises that have achieved substantial results in internal governance, innovation and transformation through government subsidies, tax incentives ans

so forth. In addition, the government should also reasonably coordinate the relationship between the "visible hand" of government intervention and the "invisible hand" of market competition, give full play to the decisive role of the market in the allocation of resources and encourage benign and fair competition, thus fully stimulating the innovation vitality of market players.

References

[1] Luo Xiaoyan. 2020 China Returnee Employment and Entrepreneurship Survey Report Released [N]. China High-tech Industry Herald, 2021-1-18(A3).

[2] HAMBRICK D C,MASON P A. Upper echelons:The organization as a reflection of its top managers[J].The Academy of management review,1984,9(2) : 193-206.

[3] Luo Siping, Yu Yongda. Technology Transfer, "Returnees" and Enterprise Technology Innovation: An Empirical Study Based on China's Photovoltaic Industry [J]. Management World, 2012 (11) : 124-132.

[4] Guo Lingxiu, Guo Xiaomin. Overseas background of executives, executives' shareholding and investment in technological innovation of enterprises [J]. Finance and Accounting Communications, 2020(22):40-44.

[5] Mathias B D,Williams D W,Smith A R. Entrepreneurial Inception: The Role of Imprinting in Entrepreneurial Action[J].Journal of Business Venturing,2015,30(1):11-28.

[6] Zheng Mingbo, Executives' overseas experience, professional background and technological innovation of enterprises[J].China Science and Technology Forum, 2019(10):137-144+153

[7] Liu Fengchao, Mo Jiaxin, Ma Rongkang. Research on the Influence of Overseas Background of Senior Management Team on Enterprise Innovation Performance [J]. Management Review, 2017, 29(7): 135-147.

[8] Li Chunling, Chen Baiying, Wang Jing. Research on the influence of the source heterogeneity of the senior management team on the innovation performance of enterprises: based on the moderating effect of equity incentives [J]. Finance and Accounting Communications, 2020(22):31-35.

[9] Guo Shujuan, Lu Yaqian, Chang Jingping. Overseas background of executives, salary gap and investment in technological innovation of enterprises: An empirical analysis based on PSM [J]. East China Economic Management, 2019, 33(7): 138- 148.

[10] Song Lin, Zhang Dan. Research on the Synergistic Influence of Executive Political Connection and Overseas Background on Enterprise Innovation Capability [J]. Contemporary Economic Science, 2019, 41(06): 98-107.

[11] Liu Guangqiang, Kong Gaowen. Does the overseas experience of executives increase the pay gap [J]. Management World, 2018, 34(8): 130-142.

[12] Feng Xiaohong, Liu Yibing. "Returnee" executives and technological innovation of enterprises [J]. Journal of Chongqing University (Social Science Edition): 1-18.

[13] Batjargal B.Internet Entrepreneurship:Social Capital,Human Capital,and Performance of Internet Ventures in China[J].Research Policy,2007,36(5).

[14] Song Jianbo, Wen Wen. Can directors' overseas backgrounds promote corporate innovation? [J]. China Soft Science, 2016(11): 109-120.

[15] Gan Weiyu, Liu Man. Returned executives and corporate innovation: From the perspective of cultural convergence [J]. Journal of Shanghai University of Finance and Economics, 2022, 24(1): 92-106.

[16] Qiao Yinhua, Cheng Yun. The diversification of foreign direct investment, returnee executives and internal control auditing—the selection of internal control auditors for OFDI companies [J]. Journal of Xi'an University of Finance and Economics, 2021, 34(1): 68-79.

[17] Song Jianbo, Wen Wen, Wang Dehong. Can returnee executives promote corporate risk-taking: empirical evidence from Chinese A-share listed companies [J]. Finance and Trade Economics, 2017, 38(12): 111-126.

[18] Dai Yunhao, Kong Dongmin. Can senior executives' overseas experience improve corporate investment efficiency [J]. World Economy, 2017, 40(1): 168-192.

[19] Liu Zhen, Huang Danhua. "Belt and Road Initiative" participation, overseas background of executives and technological innovation of enterprises [J]. Management Science, 2021, 34(4): 71-88.

[20] Li Wenjing, Zheng Manni. Substantive innovation or strategic innovation?——The impact of macro-industrial policy on micro-enterprise innovation [J]. Economic Research, 2016, 51(4): 60-73.

[21] Luo Kun. Foreign directors, management short-sightedness and corporate innovation: A moderated mediation effect model [J]. Journal of Anhui Normal University (Humanities and Social Sciences Edition), 2020, 48(3): 135-146.

[22] Zhou Xia. Performance Evaluation of Government Subsidies of Listed Companies in my country: Based on the Perspective of Enterprise Life Cycle [J]. Contemporary Finance and Economics, 2014(2): 40- 49.

[23] Shuang Qi, Li Jiaming, Tang Chaoyong. Do government subsidies improve corporate risk-taking: From the perspective of corporate life cycle [J]. Friends of Accounting, 2020(6): 99-106.

[24] Liang Biming, Qi Congli. Executive incentive or market competition promotes R&D investment [J]. Tax and Economics, 2019(2): 56-63.

[25] Song Zaike, Liu Lingjing, Song Jianing. Management power, product market competition and corporate innovation investment [J]. Finance and Accounting Communications, 2021(19): 40-43.

[26] Song Qing, Liu Yihui. The degree of market competition, R&D investment and innovation output of small and medium-sized science and technology enterprises: Conditional process analysis based on the adjustment of venture capital [J]. China Soft Science, 2021(10): 182-192.

[27] Wang Lei. Product Market Competition and Enterprise Innovation: Research Based on Text Analysis [J]. Review of Industrial Organizations, 2021, 15(3): 93-121.

[28] Tan Yunqing, Liu Zhigang, Zhu Ronglin. Theory and Empirical Research on Product Market Competition, Managerial Incentive and Company Performance [J]. Journal of Shanghai Jiaotong University, 2008, 42(11): 1823-1826.