

Executives' Overseas Background and Enterprise Innovation

Yi Xin*

School of Accounting, Anhui University of Finance and Economics, Bengbu, Anhui, China

**Corresponding Author*

Abstract: With the upsurge of overseas high-end talents returning home, whether it will have an influence on corporate innovation has become a question worth discussing. The a-share listed companies in Shanghai and Shenzhen from 2008 to 2020 are used as samples in this article, empirically executives overseas background and the connection between the function and the enterprise innovation path. The findings demonstrate a strong positive link, primarily seen in three areas, between leaders' foreign-born origin and company creativity: innovation investment, innovation output and the quantity of applications for patents. Corporate risk-taking and managerial confidence are its path of action and play a mediating role. Financial constraints moderate the relationship between them, and the greater the financial constraints are, the greater the impact of foreign experience on business innovation. The influence of overseas executives on corporate innovation is mainly reflected in incremental innovation, rather than disruptive innovation. Based on interdisciplinary orientation. This study adds to the knowledge in relevant domains by investigating the reason behind corporate innovation from the standpoint of executives' personal traits. It also establishes a theoretical framework for government initiatives pertaining to talent introduction and study abroad.

Keywords: Overseas Experience; Enterprise Innovation

1. Introduction

Development is primarily propelled forward by innovation. In line with the development plan driven by innovation, the atmosphere for innovation in China has been significantly improved, the level of innovation has been steadily improved, and remarkable

achievements have been made. According to the Statistics, In the world, China ranks first in the number of research and development talents; National expenditure on scientific research has increased to 2.8 trillion yuan, ranking second in the world. Our innovation skills have been improving, and we have made breakthroughs in many key areas. China is now joining the ranks of innovative countries. As an important subject of innovation, the dilemma of innovation cannot be ignored behind the high-quality development of enterprises. How to build a good innovation environment has become an important issue to be solved urgently in academia. From the standpoint of environmental policy at the macro level, scholars have observed the influencing factors of enterprise innovation (such as industrial policies, government funding, digital finance, etc.) and micro enterprise characteristics (such as corporate governance, property rights, salary incentives, etc.), and have achieved fruitful results.

Executives as enterprise top leadership, strategy, development plan of a company's final decision. On the basis of the upper echelons theory [1], managers are more likely to make decisions based on their own experience and characteristics when faced with a lot of complicated information inside and outside the enterprise that cannot be fully understood. The personal characteristics of executives provide a new perspective for understanding corporate behaviors. For example, the higher average level of education of managers is, and the less over-investment they have [2]. Compared with male ceos, female ceos are more able to restrain the occurrence of stock price crash [3]. The academic experience of senior officials will imprint the concept of "caring for the whole world" in their hearts, which is manifested as more active commitment to social responsibilities. With the spread of the epidemic abroad, the improvement of the

domestic economic environment, combined with the positive policy of talent introduction, many choose to develop business elite, no doubt to add momentum to the development of enterprises in China. How "returnees" executives affect corporate decision making has also become a topic worth discussing.

The A-share listed businesses in Shanghai and Shenzhen from 2008 to 2020 were selected as the study sample for this paper in order to explore the relationship empirically between CEOs' foreign experience and corporate innovation. The results indicated that: (1) A positive link has been seen between the background of overseas returnees and in management team and the investment in research and development, R&D output and patent applications, that is, the "overseas returnees" executives effectively raise the level of enterprise innovation; (2) The test indicates that improving enterprise risk-taking and enhancing manager confidence are two paths for overseas returnees executives to act on enterprise innovation, and they play a mediating effect; (3) in the further analysis found that compared with the small enterprise financing constraints, resource effect of overseas executives, cognitive effect on financing constraints, the larger enterprise play a role in the more significant, can adjust the relationship between financing constraints; (4) The background of foreign managers has an uneven promoting effect on business innovation, that is, corporate innovation is more reflected in incremental innovation rather than disruptive innovation.

The possible contributions of this study has several aspects: first, innovation is an important strategic measure for China's high-quality development. This article obtains from the executive personal characteristics to explore the potential motive influence enterprise innovation, offers a new perspective for understanding the enterprise behavior, enrich the relevant field of research; Second, interdisciplinary integration become the development direction of future research, in this paper, guided by the discipline overlapping, using the psychology of brand theory to explain the micro enterprise behavior, to broaden our brand role in decision-making for executive experience. This paper interprets the motivation and internal logic of enterprise innovation, and verifies the application of

psychological theory in management. Third, cutting-edge talents is the important guarantee to realize high quality economic and social development, this article to a certain extent, as the country traveled abroad, introducing talents, enterprise senior team construction provides a theoretical reference and has a guiding significance to social practice.

This paper is organized as follows: The literature review is the second section; theoretical analysis and research hypothesis are the third; research design is the fourth; empirical testing is the fifth; and the robustness test is the sixth; The expanded research is in part seven, the robustness test is in part six, and the conclusion and illumination are in part nine.

2. Literature Review

2.1 Overseas Background of Senior Executives

The decision-making behavior of firms is significantly impacted by the foreign experience of senior executives. One may argue that China and Western developed nations still lag behind one another in terms of the current state of capital market's development and thoroughness of the market system. Overseas experience can greatly enrich cognition and acquire advanced management experience and technology. Executives overseas experience creates unique cognitive structure and values, even under the condition of information asymmetry in the market can also be a more positive social responsibility [4, 5], enhancing the standard of disclosure of corporate social responsibility information [6]. When the management team has a large number of returnees in key positions, companies are more likely to take risks. However, this phenomenon is limited to those from countries with higher economic development level [7]. On the other hand, there are differences between eastern and Western cultures. The East emphasizes collectivism and is more implicit in expression, while the West emphasizes individualism and is more direct in expression. Directors with overseas backgrounds improve the transparency of debt financing at a lower cost, perform their supervisory functions more effectively, and reduce the likelihood of a stock crash may [8], an additional physical

investment, reduce the financialization [9], inhibit the efficiency investment behavior [10]. Although executives with overseas backgrounds can increase the level of management salary [11], the effective play of supervision can also transform the salary gap among different enterprises into the performance gap [12]. In addition, too much "to see the world" executives seem more inclined to in line with international standards [13], such as large-scale overseas investment [14], overseas mergers and acquisitions, especially in the countries of the same language [15]. They also prefer the Big Four international accounting firms in auditing [16], and the audit quality has improved, but with the increase of senior executives' tenure, the audit quality has decreased [17].

2.2 Corporate Innovation

The level of innovation can measure whether an enterprise has the ability of sustainable development and whether it can occupy a place in the market. To create a good environment for innovation, government has made a series of efforts. Innovation means A good deal of capital investment, and "difficult and expensive financing" makes many enterprises hesitate. The development of digital finance in breadth and depth [18] and government subsidies [19, 20] has solved this problem for enterprises. Government formed between the pursuit of long-term goals and enterprise pursuit of short-term interests contradiction, which leads to the failure of government support to improve the efficiency [21]. The introduction of industrial policies did significantly increase the number of patent applications [22], but the quality did not significantly improve [23]. Many real enterprises ignore corporate innovation while pursuing financial arbitrage, which makes enterprises lose competitiveness in the long run [24]. There is disagreement among academics over how uncertain economic policies affect corporate innovation [25]. To improve the innovation ability, hold on to their market position, the enterprise is also changing. Equity pledge alleviates the capital demand and promotes the pace of innovation [26]. In private enterprises, from the perspective of managers, individual shareholding and legal person shareholding can better stimulate corporate innovation [27]. Whether the senior

executives are motivated determines whether the enterprise is dynamic, and linking the salary with the performance through equity incentive greatly stimulates the enterprise innovation [28, 29]. Innovation, as a major strategic decision of enterprises, has greatly tested the courage of the management, and the ability of the management [30] and high confidence have promoted enterprises to innovate [31]. The management team's diversity affects innovation performance in different ways. The higher the education level is, the longer the tenure is, the better the innovation performance is. The older the team is, the worse the performance will be [32]. Different career experiences of ceos have different understandings of innovation, and cross-enterprise experience is the best to promote innovation, followed by cross-industry and cross-organization experience, and cross-function and cross-region experience [33].

2.3 Executives' overseas Background and Corporate Innovation

Some academics are researching executives' foreign experiences and company innovation. [34] took the electronic equipment manufacturing industry as a sample and found that the percentage of executives with international experience greatly increased the quantity of patent applications; [35] and according to Filatotchev, a company's foreign experience favorably correlates with both its innovation output and efficiency [36], and is restricted by the nature of property rights; [37] focused on the overseas background of directors and found that directors with working experience could promote corporate innovation more than those with learning experience. divided overseas background into legal background, technical background and management background, and found that different backgrounds have different impacts on innovation dimensions. From the perspective of culture, found that foreign experience can make executives more risk oriented and indirectly promote innovation investment. [38] It has been seen that foreign directors can facilitate funding restrictions and encourage research and development investments. [39], from the perspective of "dual carbon", found that the overseas background of directors can increase the

amount and caliber of green innovation.

To sum up, although some scholars have discussed the connection between corporate innovation and directors' foreign experience, there are still research gaps, such as whether there are other action paths. Therefore, this paper will conduct a brief discussion from the above issues.

3. Theoretical Analysis and the Research Hypothesis

Innovation has won the first opportunity for enterprises. From an internal business standpoint, technical innovation has reduced production costs and increased production efficiency; From the external perspective, product innovation attracts the attention of consumers and can improve the market share for enterprises. From this point of view, taking the road of innovation seems to become the only choice for enterprises. However, many enterprises still have insufficient innovation motivation and poor innovation performance, which is caused by the inherent characteristics of innovation behavior. Innovation research and development has the high investment and high risk. In the long term, due to the inconsistent goals between owners and controllers, the management is more likely to ignore the future competitiveness of the company, pursue short-term interests, beautify financial statements, and give up innovation decisions; From the point of high input, the enterprise resource is limited, to the innovation constantly additional investment will inevitably result in a shortage of other project funds; and the market mechanism is not perfect, small and medium-sized enterprises "financing difficulties, financing your" problem still exists, R&D investment in the high threshold for many businesses; From the perspective of high risk, innovation means the investment of a lot of resources, and the results of innovation are unpredictable. If the innovation fails, the capital will be wasted and the operation rhythm of the enterprise will be affected. At the worst, it will bring the risk of debt default and push the company over the cliff.

Management is in charge of the business. According to the theory of upper echelons [1], when the management cannot take into account all the information inside and outside the enterprise, they are more inclined to make

decisions with their own cognitive ideas and behavioral experience. According to the imprinting theory [40], personal growth experience will be imprinted on the heart and play an invisible role in the subsequent choices. For example, executives deeply influenced by Confucian culture are benevolent [41], and enterprises in regions with strong gambling culture are prone to stock price crash [42]. Therefore, in addition to the enterprise objective difficulties, executive's personal characteristics are also at a deeper level affect innovation decision-making. In recent years, with changes in the international situation and domestic policy orientation, a good deal of overseas workers and students have returned to China and flooded into enterprises. Whether the participation of these people will have an impact on innovation decisions has become a topic worthy of discussion.

From the standpoint of businesses, CEOs with international experience help raise the bar for corporate risk-taking and foster innovation. With high risks and high returns, enterprises must improve their ability to withstand pressure if they want to enjoy the innovation dividend. The amount of risk that businesses are willing to take on in order to maximize earnings is measured by their degree of risk-taking. On the one hand, different from the east's emphasis on collectivism, the West pays more attention to individualism. During the overseas study and work experience, senior executives are bound to be influenced by Western individualism and risk-taking spirit, so they change their original values and thinking mode and show stronger risk-taking ability [43]. On the other hand, senior executives can bring advanced management concepts, cognition and technology learned from overseas experience to local enterprises [33], lower the chance of a stock market meltdown [8], and enhance the risk-taking level of enterprises [7]. In the process of enterprise innovation, risks are hidden everywhere. Only when senior executives have the ability to deal with risks and enterprises have the strength to resolve risks, can innovation activities continue to go forward.

The overseas background of senior executives can strengthen management confidence and promote corporate innovation. The business market is like a battlefield, and the shrinking management is doomed to be eliminated by

the fierce market competition. Management confidence becomes a valuable quality for enterprises to conquer the city. First of all, easterners are more reserved and introverted, while Westerners are more confident and generous. Executives with overseas background will bring this characteristic to the team, breaking the inherent thinking of local executives to form new ideas, and dare to venture, do and innovate. Secondly, strength is the greatest confidence. Since modern times, most economic concepts and financial theories have been put forward by Westerners. Compared with domestic, foreign countries have more advanced management thoughts and market understanding. Overseas executives have more confidence in their professional quality and are more likely to make innovative decisions. Finally, abundant resources are the last guarantee of confidence. Both literature and practice have proved that overseas executives have resource effect [44]. It is also a senior steadfast innovation source of confidence.

In view of the above brief logical analysis, this paper proposes the following hypotheses:

H1: Executives' overseas background promotes corporate innovation.

H2: Corporate innovation and foreign experience are mediated by corporate risk-taking.

H3: management confidence in executives overseas plays an intermediary role between background and enterprise innovation.

4. Research Design

4.1 Data Source

This study uses the A-share listed companies in Shanghai and Shenzhen from 2008 to 2020 as its research sample. The following processing is done on the data: (1) excluding the financial industry; (2) Eliminating ST and *ST state enterprises; (3) Removing the samples that have incomplete data; (4) Continuous variables were winsorized by 1%, and a total of 25670 observations were obtained. This paper's data came from the CSMAR database.

4.2 Definition of Variables

4.2.1 Explained variable: enterprise innovation

Drawing [34,37,44], study, this paper select R&D input, R&D expenditure and patent applications three indicators to measure enterprise innovation. Among them, R&D input is the natural logarithm of R&D input, R&D expenditure is the ratio of annual R&D expenditure to total assets, and one plus the natural logarithm of the number of patent applications for inventions 1 equals the amount of patent applications.

4.2.2 Explanatory variable: executives' overseas background

Learn from, this paper chooses whether there is an overseas background among the senior executives as the indicator to measure the overseas background.

4.2.3 Corporate risk-taking

Learn from [45], and [7] research, such as Roa will minus the annual industry average, and with 3 years for the observation period, scroll to calculate standard deviation, poor, Multiply by 100 to obtain Risk1 and Risk2, which are used to measure the level of enterprise risk-taking.

4.2.4 Management confidence

Referring to the study of, the higher the salary, the more confident the executives are, so the natural logarithm of the total salary of the management is used to measure the degree of management confidence.

4.2.5 Financial constraints

This paper uses WW index to measure corporate financial constraints

4.2.6 Ambidexterity

Learn from [46] and [47], this paper adopts the top four IPC patent classification numbers as the basis, selects the five-year window period, and takes the number of repeated occurrences as exploitative innovation, while the nonrepeated occurrences as exploratory innovation.

4.2.7 Control variables

Referring to the studies of [34,37], In this paper, the following control variables are chosen: Firm Size (Size), asset-liability ratio (Lev) and total net assets (ROA) profitability, total asset turnover (ATO), cash flow ratio (Cashflow), tobin Q value (TobinQ), set up a fixed number of year (FirmAge), the first big shareholder shareholding stake (TOP1), institutional investors (Inst), Dual (Dual). Specific variables defined in table 1.

Table 1. Definition of Variables.

Variables	Variable symbols	Method of calculation
Dependent variable	LnRD	Natural logarithm of R&D investment
	RD	The company's annual R&D expenditure as a percentage of total assets
	Patent	The natural logarithm of the number of patent applications for inventions plus one
Independent variable	Oversea	Equals 1 if a senior executive has an overseas background, 0 otherwise
Intervening variable	Risk1	Firm Roa is subtracted from the annual industry mean and the standard deviation is calculated on a rolling basis with a 3- year observation period and multiplied by 100
	Risk2	Firm Roa is subtracted from the annual industry average, and the range is calculated on a rolling basis with a 3-year observation period, multiplying by 100
	TMTPay	Natural logarithm of total management compensation
Moderating variables	WW	WW index
Variable of control	Size	Enterprise size, the logarithm of the total assets of the company
	Lev	Asset-liability ratio, total liabilities/total assets
	ROA	Return on total assets, net profit/total assets
	ATO	Total asset turnover, sales net income/average total assets
	Cashflow	The cash flow ratio, business activities generated cash flows/final current liabilities
	TobinQ	Tobin's Q value
	FirmAge	Age of establishment
	TOP1	Shareholding ratio of the largest shareholder
	Inst	Institutional investor shareholding ratio
	Dual	The value is 1 if the two jobs are dual, 0 otherwise

4.3 Model Construction

Learn from [34, 37], the following model is

$$R\&D_{it} = \alpha_0 + \alpha_1 Oversea_{it} + \sum_{j=2}^{11} \alpha_j Controls_{it} + \sum Ind + \sum Year + \varepsilon_{it} \quad (1)$$

$$Risk_{it} = \beta_0 + \beta_1 Oversea_{it} + \sum_{j=2}^{11} \beta_j Controls_{it} + \sum Ind + \sum Year + \varepsilon_{it} \quad (2)$$

$$TMTPay_{it} = \gamma_0 + \gamma_1 Oversea_{it} + \sum_{j=2}^{11} \gamma_j Controls_{it} + \sum Ind + \sum Year + \varepsilon_{it} \quad (3)$$

To lessen heteroscedasticity problems, this paper employs robust clustering standard error in all regression and controls industry and year fixed effects. In regression model (1), we mainly observe the change of coefficient. If

constructed to test hypotheses 1-3:

$\alpha_1 > 0$ and statistically significant, it indicates that senior executives' military experience has a positive role in promoting corporate innovation; $\alpha_1 < 0$ and statistically significant, it indicates that senior executives' military

experience has negative inhibitory effect on corporate innovation. Drawing on the research of [48], we use the first two empirical steps and the second step logical reasoning method to verify the mediating effect. In regression models (2) and (3), we mainly observe the changes of coefficients. If β_1 and $\gamma_1 > 0$ and is statistically significant, it indicates that corporate risk-taking and the association between corporate innovation and abroad background is mediated by managerial confidence.

5. Empirical Test

5.1 Descriptive Statistics

Table 2 displays the descriptive statistics for the aforementioned factors. According to the data in the table, the maximum value of LnRD is 21.686, and the minimum value is 0; RD has a minimum value of 0 and a maximum value of 0.101; The maximum value of Patent is 5.984, and the minimum value is 0, indicating that there is a large gap between different enterprises in investment in research and development, R&D expenditure and patent applications. 61.9% of the managers of A-share listed businesses in Shanghai and Shenzhen have overseas experience, according to the average value of Oversea, which is 0.619, which reflects that it has become a common phenomenon for enterprises to absorb, accept and cultivate overseas talents.

Table 2. Descriptive Statistics.

Variable	N	Mean	SD	p50	Min	Max
lnRD	25670	15.57	5.954	17.52	0	21.69
RD	25670	0.0190	0.0190	0.0160	0	0.101
Patent	25670	1.831	1.525	1.792	0	5.984
Oversea	25670	0.619	0.486	1	0	1
Size	25670	22.19	1.289	22.01	19.83	26.16
Lev	25670	0.424	0.204	0.418	0.0490	0.877
ROA	25670	0.0430	0.0620	0.0400	-0.235	0.223
ATO	25670	0.664	0.445	0.563	0.0760	2.646
Cashflow	25670	0.0490	0.0670	0.0470	-0.158	0.241
TobinQ	25670	2.029	1.282	1.614	0.862	8.600
FirmAge	25670	2.853	0.348	2.890	1.609	3.497
TOP1	25670	34.79	14.84	32.83	8.567	74.18
Inst	25670	45.74	25.23	47.63	0.317	94.18
Dual	25670	0.265	0.441	0	0	1

5.2 Multiple Regression Analysis

Columns (1), (2) and (3) of Table 3 report the impact of executives' overseas background on R&D investment, R&D expenditure and the number of patent applications respectively. Line 1 can be observed from the table, the regression coefficient of Oversea were 0.433, 0.001, 0.087, and were significant under 1% level. This shows that when there is overseas background among the executives, the more investment in research and development, the more R&D expenditure, the more patent applications, that is, there is a positive

correlation between overseas background and corporate innovation. Hypothesis 1 of this paper is valid. In sub-paragraph (4), (5), (6) columns respectively report if there are overseas background in executive and management to enterprise risk for confidence, from the table line 1, the Oversea's regression coefficient is 0.001, 0.002, 0.148, respectively, and a significant under the level of 5% and 1% respectively, It shows that overseas background of executives is positively correlated with corporate risktaking and managerial confidence. Combined with the

above theoretical analysis, it shows that confidence play a mediating role between corporate risk-taking and managerial overseas background and corporate innovation.

Table 3. Multiple Regression.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	lnRD	RD	Patent	Risk1	Risk2	TMTPay
Oversea	0.433***	0.001***	0.087***	0.001**	0.002**	0.148***
	(4.028)	(4.194)	(3.064)	(2.449)	(2.375)	(10.497)
Size	1.302***	-0.001**	0.599***	-0.003***	-0.005***	0.311***
	(17.794)	(-2.377)	(29.377)	(-8.404)	(-8.303)	(31.325)
Lev	-2.062***	-0.005***	-0.266***	-0.013***	-0.024***	-0.245***
	(-4.909)	(-4.116)	(-2.686)	(-5.725)	(-5.687)	(-5.136)
ROA	0.516	0.017***	0.773***	-0.177***	-0.328***	1.626***
	(0.652)	(5.340)	(3.623)	(-20.886)	(-20.820)	(14.854)
ATO	1.434***	0.007***	0.196***	0.001	0.003	0.177***
	(7.538)	(11.252)	(4.210)	(1.592)	(1.570)	(8.351)
Cashflow	-0.869	0.014***	-0.158	0.031***	0.058***	0.507***
	(-1.286)	(5.912)	(-0.905)	(6.552)	(6.539)	(6.026)
TobinQ	-0.030	0.001***	0.056***	0.003***	0.006***	0.009
	(-0.634)	(6.164)	(4.680)	(10.032)	(10.144)	(1.427)
FirmAge	-1.553***	-0.004***	-0.138**	-0.002	-0.003	-0.022
	(-8.009)	(-6.159)	(-2.415)	(-1.637)	(-1.595)	(-0.807)
TOP1	0.000	-0.000***	-0.003***	-0.000**	-0.000**	-0.006***
	(0.073)	(-2.665)	(-2.696)	(-2.507)	(-2.420)	(-9.362)
Inst	-0.010***	-0.000	0.000	-0.000	-0.000	0.001**
	(-4.083)	(-0.331)	(0.130)	(-1.100)	(-1.172)	(2.289)
Dual	0.233**	0.001***	0.021	0.002***	0.004***	-0.027*
	(2.376)	(2.736)	(0.651)	(3.396)	(3.349)	(-1.690)
Constant	-8.801***	0.038***	-11.176***	0.102***	0.190***	8.368***
	(-5.575)	(6.699)	(-24.204)	(13.701)	(13.584)	(36.913)
Observations	25670	25670	25670	25670	25670	25623
Adjusted R-squared	0.508	0.455	0.429	0.170	0.170	0.442
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.1

6. Robustness Test

6.1 Replacing Explanatory Variables

The presence of an overseas background among executives is measured by the index of

the percentage of executives with an overseas background (Overseal). Table 4, specifically Columns (1), (2), and (3), illustrates how the percentage of CEOs with foreign origins affects company creativity. The effect of the

percentage of foreign managers' overseas management confidence is seen in columns (4), experience on company risk-taking and (5), and (6).

Table 4. Replacing Explanatory Variables.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	lnRD	RD	Patent	Risk1	Risk2	TMTPay
Overseal	2.850***	0.013***	0.601***	0.008**	0.016**	1.044***
	(4.365)	(4.972)	(2.849)	(2.290)	(2.319)	(10.670)
Size	1.294***	-0.001***	0.597***	-0.003***	-0.005***	0.307***
	(17.678)	(-2.701)	(29.230)	(-8.488)	(-8.402)	(31.314)
Lev	-2.032***	-0.005***	-0.259***	-0.013***	-0.024***	-0.232***
	(-4.841)	(-3.926)	(-2.620)	(-5.697)	(-5.654)	(-4.918)
ROA	0.549	0.017***	0.781***	-0.177***	-0.327***	1.639***
	(0.695)	(5.416)	(3.656)	(-20.856)	(-20.788)	(14.898)
ATO	1.427***	0.007***	0.195***	0.001	0.002	0.174***
	(7.493)	(11.187)	(4.174)	(1.567)	(1.544)	(8.281)
Cashflow	-0.957	0.013***	-0.177	0.031***	0.057***	0.475***
	(-1.412)	(5.742)	(-1.014)	(6.493)	(6.478)	(5.625)
TobinQ	-0.037	0.001***	0.054***	0.003***	0.006***	0.006
	(-0.781)	(5.969)	(4.533)	(9.978)	(10.084)	(0.984)
FirmAge	-1.542***	-0.004***	-0.135**	-0.002	-0.003	-0.017
	(-7.990)	(-6.005)	(-2.365)	(-1.618)	(-1.571)	(-0.625)
TOP1	0.001	-0.000**	-0.003***	-0.000**	-0.000**	-0.006***
	(0.176)	(-2.477)	(-2.618)	(-2.452)	(-2.361)	(-9.043)
Inst	-0.010***	-0.000	0.000	-0.000	-0.000	0.001**
	(-4.179)	(-0.468)	(0.066)	(-1.138)	(-1.212)	(2.061)
Dual	0.217**	0.001**	0.017	0.002***	0.004***	-0.033**
	(2.197)	(2.517)	(0.535)	(3.335)	(3.284)	(-2.110)
Constant	-8.570***	0.039***	-11.125***	0.103***	0.191***	8.454***
	(-5.427)	(6.969)	(-24.086)	(13.807)	(13.695)	(37.666)
Observations	25670	25670	25670	25670	25670	25623
Adjusted R-squared	0.508	0.457	0.430	0.170	0.170	0.446
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.1

6.2 Replacing the Explained Variables

Corporate innovation is measured using the natural logarithm of the number of granted inventive patents plus one (Patent_Award) and

the ratio of yearly R&D investment to operational revenue (RD1). Table 5 displays the results of the regression. The robustness of Hypothesis 1 is demonstrated by Table 5,

which shows that the 1% level, both of 0.085, respectively—are significant. Oversea's regression coefficients—0.003 and

Table 5. Replacing the Explained Variables.

VARIABLES	(1) RD1	(2) Patent Award
Oversea	0.003*** (4.209)	0.085*** (3.663)
Size	0.001 (1.422)	0.486*** (26.037)
Lev	-0.034*** (-11.420)	-0.363*** (-4.346)
ROA	-0.024*** (-3.198)	-0.243 (-1.359)
ATO	-0.015*** (-13.758)	0.137*** (3.644)
Cashflow	0.004 (0.874)	-0.094 (-0.668)
TobinQ	0.004*** (7.207)	0.056*** (5.661)
FirmAge	-0.012*** (-7.641)	-0.064 (-1.351)
TOP1	-0.000*** (-3.001)	-0.002* (-1.867)
Inst	-0.000* (-1.766)	0.000 (0.531)
Dual	0.004*** (4.413)	-0.014 (-0.526)
Constant	0.077*** (7.044)	-9.479*** (-22.852)
Observations	25670	25670
Adjusted R-squared	0.480	0.374
Industry	Yes	Yes
Year	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.1

6.3 One-period-lagged Treatment

The executives with overseas backgrounds effectively promotes corporate innovation, but it is also possible that enterprises deliberately recruit overseas background executives to improve innovation ability, so there is a possibility of reverse causality between them. In view of this, the explanatory variable (Oversea) is delayed by one period to alleviate the endogeneity problem. The regression results are still significant. Table limited to space will not be displayed.

7. Extended Research

7.1 Moderating Effect of Financial Constraints

Senior executives' overseas experience will

bring resource effect to enterprises [44]. Overseas experience accumulation of social capital in the economic market of rare, in addition to the optimization of enterprise resource configuration, also can effectively alleviate the financing constraints, winning advantage in the enterprise competition. "Difficult and expensive financing" is the key to the innovation of many enterprises, and the overseas background of executives may be could solve this problem. In theory, when the financing constraints are greater, the resource effect of overseas executives will be more obvious. We use group-based regression to test this idea. We use the WW index to measure the financial constraints of firms. In table 6, according to the financing constraint larger significantly, a set of financing constraints, a

smaller group was not significant, showed that financing constraints on executive overseas background and regulating effects of enterprise innovation, financing constraints, the greater

the executives overseas background for the promotion of enterprise innovation, the more significant role.

Table 6. Moderating Effect of Financial Constraints.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	lnRD	lnRD	RD	RD	Patent	Patent
Oversea	0.442***	-1.747	0.001***	0.000	0.086***	0.141
	(4.111)	(-1.455)	(4.190)	(0.190)	(3.031)	(0.543)
Size	1.281***	2.939***	-0.001**	0.000	0.587***	0.864***
	(17.195)	(4.808)	(-2.078)	(0.252)	(29.061)	(5.399)
Lev	-1.976***	-8.816*	-0.005***	-0.010	-0.228**	-1.799
	(-4.695)	(-1.964)	(-4.180)	(-0.984)	(-2.316)	(-1.276)
ROA	0.658	1.755	0.017***	0.022	0.872***	-3.948
	(0.833)	(0.132)	(5.317)	(0.943)	(4.154)	(-0.976)
ATO	1.442***	1.019	0.008***	0.003	0.190***	0.446
	(7.446)	(1.105)	(11.241)	(1.237)	(4.091)	(0.905)
Cashflow	-0.864	-7.466	0.014***	0.022	-0.161	-0.147
	(-1.274)	(-0.829)	(6.098)	(1.048)	(-0.925)	(-0.067)
TobinQ	-0.036	1.187	0.001***	0.002	0.052***	0.391*
	(-0.769)	(1.653)	(6.106)	(1.333)	(4.374)	(1.913)
FirmAge	-1.535***	-0.632	-0.004***	0.001	-0.122**	0.279
	(-7.896)	(-0.202)	(-6.114)	(0.268)	(-2.145)	(0.276)
TOP1	0.000	-0.074	-0.000***	0.000	-0.004***	-0.008
	(0.107)	(-1.257)	(-2.594)	(0.846)	(-2.980)	(-0.642)
Inst	-0.010***	0.028	-0.000	-0.000	0.000	0.006
	(-4.167)	(0.884)	(-0.312)	(-0.586)	(0.168)	(0.640)
Dual	0.223**	0.048	0.001***	-0.003	0.021	-0.185
	(2.295)	(0.029)	(2.776)	(-1.175)	(0.671)	(-0.606)
Constant	-8.405***	-47.077***	0.036***	-0.002	-10.937***	-18.427***
	(-5.243)	(-2.851)	(6.395)	(-0.081)	(-24.010)	(-3.269)
Observations	25485	169	25485	169	25485	169
Adjusted R-squared	0.509	0.494	0.456	0.420	0.424	0.689
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.1

7.2 Binary Innovation

Two types of invention exist: exploratory innovation and exploitative innovation [46]. Exploitative innovation refers to the transformation based on the original innovation with low cost and low risk; Exploratory innovation refers to the destruction of the original situation, seek breakthrough in unknown areas, the cost of risk is big, but also can bring huge gains [49].

Specifically, in this paper, whether an executive's foreign experience has an exploratory or exploitative effect on company innovation is an intriguing question. The research of [46] and [47], this paper deals with IPC patents, divides innovation into two types: exploitative innovation and exploratory innovation, and makes regression analysis. On the basis of the regression data table 7, the use of innovation for regression, Overseas

coefficient is 3.117, the 1% important level; In the regression of exploratory innovation, the Oversea coefficient is 0.021, which is not significant. Show that executives overseas

background on enterprise innovation more performance in use rather than exploratory innovation.

Table 7. Binary Innovation.

VARIABLES	(1) Exploitative	(2) Exploratory
Oversea	3.117*** (2.876)	0.021 (0.142)
Size	17.501*** (10.438)	1.261*** (9.282)
Lev	-13.919*** (-3.121)	0.432 (0.841)
ROA	2.888 (0.284)	13.214*** (10.363)
ATO	8.192*** (3.644)	0.848*** (3.528)
Cashflow	17.036** (2.142)	0.979 (1.000)
TobinQ	3.256*** (6.467)	-0.024 (-0.381)
FirmAge	2.762 (1.231)	-1.335*** (-4.298)
TOP1	0.006 (0.094)	0.002 (0.217)
Inst	-0.052* (-1.772)	-0.001 (-0.244)
Dual	1.642 (1.096)	0.433** (2.274)
Constant	-386.018*** (-10.161)	-20.850*** (-6.825)
Observations	25670	25670
Adjusted R-squared	0.219	0.182
Industry	Yes	Yes
Year	Yes	Yes

*** p<0.01, ** p<0.05, * p<0.1

8. Conclusions and Implications

Innovation is a key strategic approach to give businesses a competitive edge and a key catalyst for ensuring excellent economic growth. This is the reason this article uses research samples of A-share listed businesses in Shanghai and Shenzhen from 2008 to 2020 to assess experimentally the effect of CEOs' foreign experience on corporate innovation. The findings indicate that business creativity and executives' foreign experience are significantly positively correlated., which is mainly reflected in investment in research and development, amount of money applied to both the number of patent applications and research and development investments.

Corporate risktaking and management confidence are its path of action, which play a partial mediating role. Compared with the regions with less financial constraints, the impact of overseas executives on corporate innovation is more significant in the regions with greater financial constraints; Overseas executives for more performance in incremental innovation enterprise innovation, rather than a disruptive innovations.

In light of the aforementioned conclusions, this study gains the following understanding: first, for individuals, such as have the opportunity to can choose to go abroad for further study, open field of vision at the same time, take the essence to the dregs, back home

in order to better for my country. Second, for enterprises, they should observe the selection and training of top management team and diversify the top management team; Invite overseas experts to exchange guidance and introduce new management ideas; Provide government-funded study abroad opportunities, so that more people have the opportunity to contact the unique Western culture, and combined with the background of Chinese characteristics, rationally explore the direction of enterprise development. Third, for the society, we should improve the introduction system of high-end talents, optimize the treatment and support for returnees, and improve the employment policy for returnees, so that more high-level talents can be employed by China.

Acknowledgements

This research was supported by Postgraduate Research Innovation Foundation of Anhui University of Finance and Economics: ACYC2021486 and ACYC2021497.

References

- [1] Hambrick, D.C., Mason, P.A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of management review*, 9 (2): 193-206.
- [2] Jiang, F.X., Yi, Z.H., Su, F., Huang, L. (2009). Characteristics of managers' background and enterprise overinvestment behavior. *Management World*, (01): 130-139.
- [3] Li, X.R., Liu, X. (2012). CEO vs CFO: gender and stock price crash risk. *Journal of World Economy*, 35 (12): 102-129.
- [4] Li, X.F., Cheng, B.D., Xu, H., Li, F.F. (2020). Does the overseas returnees background of senior executives contribute to the fulfillment of corporate social responsibility? Based on the empirical data of A-share listed companies. *Business Management Journal*, 42 (11): 56-72.
- [5] Zhang, L.G., Shi, X.W., Xiong, Y. (2020). The improvement effect of overseas directors on corporate social responsibility failure behaviors. *Journal of Harbin University of Commerce*, (01): 34-49.
- [6] Jiang, Y.M., Lai, Y. (2019). The impact of executives' overseas background on corporate social responsibility information disclosure: based on the moderating effect of regional regulatory pressure. *Journal of Shanxi University of Finance and Economics*, 41 (01): 70-86.
- [7] Song, J.B., Wen, W., Wang, D.H. (2017). Can Overseas returnees executives promote corporate risk-taking: Empirical evidence from Chinese Ashare listed companies. *Finance & Trade Economics*, 38 (12): 111-126.
- [8] Wang, D.H., Wen, W., Song, J.B. (2018). Can Directors' overseas background reduce the risk of stock price crash? Empirical evidence from Chinese A-share listed companies. *Journal of Financial Review*, 10 (03): 52-69+123-124.
- [9] Gong, G.G., Xiao, B.Y. (2020). The role of overseas directors in the financialization of real enterprises. *Journal of Industrial Technology Economics*, 39 (09): 121-129
- [10] Xia, H. (2019). An empirical test on the impact of executives' overseas background on inefficient investment. *Statistics and Decision*, 35 (16): 184-188.
- [11] Wu, X.J, Huang, X.F. (2019). Research on executive compensation incentive in overseas background. *Research on Financial and Economic Issues*, (02):98-104.
- [12] Wang, H.C., Wang, Y., Hu, J.J., Cui, Y.J. (2015). Overseas Background of Independent Directors and Executive Compensation Contracts. *Journal of Southeast University (Philosophy and Social Sciences)*, 17 (03): 67-75+147.
- [13] Liu, C.Z., Yang, G.N., Yu, X.F. (2017a). The impact of overseas directors on the internationalization degree of enterprises: evidence from Chinese listed companies. *International Business (Journal of University of International Business and Economics)*, (01): 140-150.
- [14] Qi, J.H. (2020). Can overseas background directors improve the efficiency of enterprises' overseas investment? - evidence from China. *Journal of sun yat-sen university (social science edition)*, 60 (4): 195-207.
- [15] Zhou, Z.S., He, C., Han, Y.L. (2020). Overseas experience and M&A performance: The perspective of overseas returnees executives' cross-cultural integration advantages. *Accounting*

- Research, (08): 64-76.
- [16]Zhou, Z.J., Song, S.C. (2019). Returnees and auditor selection: the role of agency cost. *Audit & Economics Research*, 34 (03): 42-51.
- [17]Gao, F.L., Dong, B.R., Wang, J., Ling, H. (2020). An empirical study on independent directors' background characteristics and audit quality. *Audit & Economics Research*, 35(02):27-39.
- [18]Tang, S., Wu, X.C, Zhu, J. (2020). Digital financial and enterprise technology innovation, structure characteristics, mechanism and financial regulation under the effect of difference. *Management World*, 36 (05): 52-66+9.
- [19]Yang, Y., Wei, J., Luo, L.J. (2015). Who is using government subsidies to innovate? Joint adjustment effect of ownership and factor market distortion. *Management World*, (01): 75- 86+98+188.
- [20]Guo, Y. (2018). Signal transmission mechanism of government innovation subsidy and enterprise innovation. *China Industrial Economics*, (09):98-116.
- [21]Xiao, W., Lin, G.B. (2014). Government support, R&D management and technological innovation efficiency: an empirical analysis based on China's industrial sectors. *Management World*, (04): 71-80.
- [22]Yu, M.G, Fan, R., Zhong, H.J. (2016). China's industrial policy and enterprise technological innovation. *China Industrial Economics*, (12): 5-22.
- [23]Li, W.J., Zheng, M.N. (2016). Substantive innovation or Strategic innovation? The impact of macro industrial policy on micro firm innovation. *Economic Research Journal*, 51 (04): 60-73.
- [24]Wang, H.J., Cao, Y.Q., Yang, Q., Yang, Z. (2017). Whether financialization of real enterprises promotes or inhibits corporate innovation: an empirical study based on Chinese listed manufacturing companies. *Nankai Business Review*, 20 (01): 155-166.
- [25]Gu, X.M., Chen, Y.M., Pan, S.Y. (2018). Economic policy uncertainty and innovation: An empirical analysis based on Chinese listed companies. *Economic Research Journal*, 53 (02): 109-123.
- [26]Zhang, R.J, X X, Wang, C.E. (2017) Equity pledge and enterprise innovation of major shareholders. *Audit & Economic Research*, 32(04):63-73.
- [27]Li, W.G., Yu, M.G. (2015). Ownership structure and enterprise innovation of privatized enterprises. *Management World*, (04):112-125.
- [28]Li, C.T., Song, M. (2010). China's manufacturing industry enterprise's innovation activities: ownership and the role of CEO incentive. *Journal of economic studies*, (5): 55-67.
- [29]Lu, T., Dang, Y. (2014). Corporate governance and technological innovation: a comparison of different industries. *Economic Research Journal*, 49 (06): 115-128.
- [30]Yao, L.J., Zhou, Y. (2018). Management ability, innovation level and innovation efficiency. *Accounting Research*, (06): 70-77.
- [31]Yi, J.T., Zhang, X.P., Wang, H.C. (2015). Corporate heterogeneity, executive overconfidence and corporate innovation performance. *Nankai Business Review*, 18 (06): 101-112.
- [32]Xie, F.H, Yao, X.G, Gu, J.J. (2008). Empirical research on the relationship between top management team heterogeneity and enterprise technology innovation performance. *Science Research Management*, (06): 65-73.
- [33]He, P.L., Sun, Y.L., Ning, J., Chen, L. (2019). Executives traits, the rule of law environment and information disclosure quality. *China soft science*, (10): 112-128.
- [34]Liu, F.C., Mo, J.X., Ma, R.K. (2017b). Research on the impact of overseas background of top management team on corporate innovation performance. *Management Review*, 29 (07): 135-147.
- [35]Guo, S.J., Lu, Y.Q., Chang, J.P. (2019). Overseas background, pay gap and technological innovation investment: an empirical analysis based on PSM. *East China Economic Management*, 33 (07): 138-148.
- [36]Lu, X.F., Dou, Q.B., Song, W., Ge, Z.Z. (2021). Returnees executives and corporate innovation efficiency: Help or resistance? *Science and Technology Management Research*, 41(01):143-150.
- [37]Song, J.B., Wen, W. (2016). Can Directors' overseas background promote corporate innovation? *China soft science*, (11):

- 109-120.
- [38]Wei, Y.J., Ding, Y.F, Cao, H.P. (2021). Chairman's overseas background and corporate R&D investment: an intermediary role based on financing constraints. *Journal of Harbin University of Commerce*, (03): 77- 91.
- [39]Shen, F., Tao, Q.Z., Zhang, Y. (2022). Director of overseas background research on the influence of green technology innovation - based on the perspective of corporate reputation. *Journal of Shanghai University of Finance and Economics*, 24 (03): 108-122.
- [40]Marquis, C., Andras, Tilcsik. (2013). *Imprinting: Toward A Multilevel Theory*. *The Academy of Management Annals*, 7 (1): 195-245.
- [41]Xu, X.X., Long, Z.N., Li, W.L. (2020). Confucian culture and corporate Philanthropy. *Foreign Economics and Management*, 42 (02): 124-136.
- [42]Xiong, J.C, Yang, L.F. (2023). Does regional gambling culture affect the risk of stock price crash? Empirical evidence from lottery sales. *Journal of Audit and Economic Research*, 38 (01): 75-83.
- [43]Li, K., Griffin, D., Yue, H., Zhao, L. (2013). How does culture influence corporate risk-taking?. *Journal of corporate finance*, 23: 1-22.
- [44] Custodio, C., Ferreira, M.A., Matos, P. (2019). Do general managerial skills spur innovation?. *Management Science*, 65 (2): 459-476.
- [45]Yu, M.G., Li, W.G., Pan, H.B. (2013). Overconfidence and risk-taking. *Journal of Financial Research*, (01): 149-163.
- [46]Guan, J., Liu, N. (2016). Exploitative and exploratory innovations in knowledge network and collaboration network: A patent analysis in the technological field of nano-energy. *Research Policy*, 45 (1): 97-112.
- [47]Xu, L.Y., Zeng, D.M., Li, J. (2017). The impact of knowledge network centrality and knowledge diversification on dual innovation performance of enterprises. *Journal of management*, 14 (02): 221-228.
- [48]Jiang, T. (2022). Mediating effect and moderating effect in causal inference empirical research. *China Industrial Economics*, (05): 100-120.
- [49]Garcia-Vega, M. (2006). Does technological diversification promote innovation? An empirical analysis for European firms. *Research Policy*, 35 (2):230-246.