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Research on the Endogenous Mechanism of Political Relations of Military Industrial Enterprises to Innovation Performance Driven by Innovation

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Abstract

Taking the military industry listed companies from 2010 to 2019 as a research sample, comprehensively use high-level team theory, investment decision theory, human capital theory and other related theories to deeply explore the influence mechanism of political connections on military industry enterprise innovation performance. The research results show that: for military enterprises, the politically connected characteristics of senior managers will promote the innovation performance of enterprises. Managers' overconfidence plays a part of the mediating effect in the influence of political connections on enterprise innovation performance. At the same time, the inflow of R & D personnel has produced a negative moderating effect in the relationship between political connections and corporate innovation performance. Further research shows that, from the perspective of the level of political relevance, politically connected managers at the central level have a negative impact on corporate innovation performance. The negative moderating effect of the inflow of R & D personnel in the political connection and enterprise innovation performance is related to the political connection at the central level.

Keywords: military industry, innovation performance, political relevance, managerial overconfidence, the inflow of R & D personnel

1. Introduction

Today, the world pattern has entered a new watershed stage. Facing the new world pattern, China should adhere to the established strategy, focus on domestic development and reform, constantly enhance its own strength, and consolidate the foundation for national development. State-to-state competition is not only a game of system, but also a contest of strength. The field of national defense technology and weapons and equipment is an important symbol of a country's economic development level

and national industrial capacity. It is also a key field (Mei Yang, Huang Chaofeng & Xu Yingxue, 2019), where China must have a competitive advantage to become an independent and innovative industrial power in the future. Military industry as an important industry of guarding national security and the core body of military depth integration and scientific and technological innovation (Kong Zhaojun & Zhang Yumeng, 2021), its production behavior will directly affect our country homeland security. However, the current overall level of innovation efficiency of listed military enterprises in China is low and varies greatly, even most of the enterprises' technology innovation efficiency is in a state of serious failure (Fang Zhengqi, Zhang Baocheng & Qin Jie, 2019). In view of this, an in-depth study of its innovative obstacles and propose effective solutions, is bound to promote China's national defense and military strength and provide new growth points for economic development.

The development of the enterprise is inseparable from the personal characteristics of the management. Under the background of the transformation economy, Differences in institutional and factor market changes in China's marketization process, resulting in differences in the impact of political on enterprises' innovation performance deserve attention. Some studies believe that political relevance and innovation ability are two complementary relationships, that is, political correction is conducive to enterprise innovation performance (Kim C & Zhang L D., 2016). Another part of the research believes that political relevance has an alternative effect on enterprise innovation and will hinder the innovative development (Dang Li, Yang Ruilong & Yang Jidong, 2015). At the same time, although many scholars have explored the underlying mechanisms, they basically rest on two perspectives: the knowledge-based view and the resource-based view. For example, studies have found that political relevance can act on knowledge acquisition and integration (Chen Jiawen, Yao Xiaotao & Li Pengfei, 2016), knowledge absorptive capacity (Naqshbandi M M & Kaur S., 2014), external financing capacity (Xiong Jiacai & Gui Hefa, 2020), and R & D capital investment to influence enterprises' innovation performance. In addition, the study also found that the strength of the board fault zone (Mai Sheng & Zhang Wenrui, 2019) and weakening political relevance have a positive effect on innovation performance, and a good institutional environment (Yan, Ruosen & Xiao Sha, 2019) will weaken the negative impact of political relevance on the innovation performance of family enterprises.

In conclusion, although there is extensive literature exploring the impact of political relevance on enterprise innovation, the direction of the impact between the two is still unclear. Meanwhile, few studies have examined the underlying mechanisms between political relevance and enterprise innovation performance from the perspective of managerial psychology and employee value creation; moreover, the current research is not subdivided into the industry. Then in the complex economic background, what is the influence and action mechanism of political connection on their innovation performance for military enterprises? In view of these problems, this paper, based on previous research, introduces theories such as human capital to analyze the function mechanism of political connection on the technological innovation performance of military industry enterprises, and verifies the non-equilibrium panel data of China's listed military industry enterprises from 2010 to 2019. The contributions of this article are: First, this paper believes that for the military enterprises with national strategic characteristics, managerial characteristics are one of the important factors in whether the management can effectively create enterprise value. This paper tries to explore the relationship with enterprise innovation performance from the individual dimensions such as political relevance and managerial overconfidence, so as to help military industry enterprises choose managers conducive to innovative development. Second, the specific role path and mechanism of labor in value creation is not clear. This paper introduces the inflow of R & D personnel into this index to explore its role between political relevance and enterprise innovation performance, and provides some ideas for enterprise human resources management, which has certain practical value.

2. Theory and Hypothesis

2.1 Political Relevance and Innovation Performance of

Military Industry Enterprises

After years of rapid development and the impact of the global economic turmoil in recent years, China's capital market has gradually shifted from high speed development to high quality development, coupled with the implementation strategies such as industrial transformation and structural optimization, making the drive for economic development has changed from elements and investment to innovation (Sun Qiheng & Zhang Lanxia, 2021), which means that innovation has become the main driver of our economic development and the progress of individual enterprises. For China's military listed enterprises, the position of innovation is even more important. In China, with the deepening of reform and opening up, more and more enterprises realize that the survival and development of enterprises cannot be separated from the support of the government and the market, which forms the phenomenon of establishing political links with the government. Signaling theory shows that individuals with information advantage in the market will transmit information to individuals with information disadvantage through signal transmission, so as to achieve efficient market equilibrium. From the perspective of the information asymmetry problem that affects the enterprise innovation activities, the political relevance plays an important signal role in it. Enterprise innovation and research and development requires a large amount of capital investment. Based on the resource acquisition mechanism, it is the signal of political connection that reduces the risk of (Xiong Jiacai & Gui Hefa, 2020) enterprise getting into financing difficulties, which makes enterprises have enough funds to support the innovative development. In addition, enterprise innovation R & D achievements also involve important protection work. Based on the property rights protection mechanism, the political correlation can serve as an alternative system to protect the property rights of private enterprises from infringement. However, from the perspective of rent-seeking theory, because the government uses administrative power to intervene and control the enterprises' economic activities, which hinders the role of market competition, which gives few privileged the opportunity to earn excess income, that is, enterprises can obtain the resource monopoly right or form a hidden contract by establishing political association. Therefore, in order to avoid risk, politically related enterprises tend to use rent-seeking activities, rather than increasing innovation investment to gain competitive advantage and improve enterprise performance (Dang Li, Yang Ruilong & Yang Jidong, 2015).

To sum up, though under different theories, the political relevant of innovation performance mechanism is not unified, considering the strategic position of military industry enterprise innovation in our country and the large amount of funds required for innovative R & D activities, that is, the establishment of political ties between military companies and the government can urge enterprise innovation, and ease the pressure of research and development activities, and intensify enterprise innovation research and development. Therefore, the following assumptions are made here:

H1: Political relevance is positively promoting the performance of enterprise technological innovation.

2.2 The Mediation Effect of Managerial Overconfidence

According to the upper-echelon theory, the enterprise behavior and its performance are the reflection of managers' characteristics, especially their psychological characteristics. Managers' cognition is influenced by psychological attributes, and they will evaluate information and make decisions based on their own experience, values and personality. Therefore, overconfidence, as one of the most common and stable psychological characteristics of human beings, is reflected in the strategic choice and organizational performance of enterprises. Existing research suggests that managers past or present experiences will have a certain impact on managers' psychological deviation, and research believes that when enterprises gain access to resources through political correlation, managers will overestimate their abilities (Huang Lianqin & Wei Lai, 2015). But as management seeks long-standing interests to maintain its own status and reputation, they will curb the overconfidence tendency (Liu Nian & Chen Weihong, 2017).

With the development of behavioral economics

and behavioral corporate financial field, considering the characteristics of high risk of enterprise innovation behavior and the characteristics of overconfidence performance, academics began to focus on the impact of overconfidence on firms' innovative behavior. Galasso and Simcoe (2011) first introduced managerial overconfidence into the enterprise innovation behavior research, Subsequent partial studies (Hirshleifer D, 2012) showed that overconfident managers have significantly promoted the number of corporate patents, the level of R & D investment, and the number of patent citations. But these conclusions contradict subsequent studies, which in part found that managerial overconfidence can have negative economic consequences for enterprise innovation. (Malmendier U, Tate G & Yan J, 2011) These scholars thought that overconfident managers often overestimate the benefits of innovation projects but underestimate their risks and uncertainty, deviating from the rational investment track to over-invest, and ultimately resulting in low corporate innovation performance, which is also consistent with investment decision theory.

In summary, this paper believes that due to the influence of its own industry characteristics, the management of politically related military industry enterprises will pay more attention to their status and reputation to reduce overconfidence, while overconfident managers will increase their investment in R & D. However, given the high uncertainty and high adjustment cost of R & D in military enterprises, a large number of innovation investment activities do not necessarily lead to high innovation performance; besides, considering that environmental uncertainty can amplify managers' irrational decisions, this paper considers political relevance as a way of communicating information with the external environment. This uncertainty in information exchange will increase managers' overconfidence in the face of innovative decisions. Therefore, this paper believes that managerial overconfidence has an intermediary effect in the relationship between political correlation and technological innovation performance of military industry enterprises, and therefore proposes the following hypothesis:

H2: Politically connected managers can reduce managerial overconfidence.

H3: Managerial overconfidence has an inhibiting effect on innovation performance in military industry enterprises.

H4: Managerial overconfidence plays an intermediary role between political correlation and enterprise innovation performance.

2.3 Moderating Effect of R & D Inflow

Labor factors are an important part of enterprise innovation investment. As a provider of labor factors, human capital can digest technology, equipment and management experience into an important absorption condition of production efficiency (Su Ke & Zhou Chao, 2021) through the creative application of its own knowledge and skills. Human capital level is significantly related to the enterprise technology efficiency level, which means that for technology enterprises, especially military enterprises, as the initiators of innovative ideas and innovative solutions and the leaders and implementers of corporate innovation, R & D personnel play an important role in the process of transforming material inputs into innovative outputs.

Innovation activity is an information and knowledge-oriented activity. Based on the enterprise resources theory, a better integration of information level and knowledge skills is necessary to maximize the competitive advantage of the company. That is to say, only the full combination of management's information acquisition and R & D human capital knowledge technology can the enterprise innovation strategy be better implemented. Mueller (1966) believes that most of the innovation resources come from outside the enterprise, and the employees flowing in outside the organization can form an impact on the organization's thinking inertia and path dependence and make up for the knowledge gap of the organization with more creative knowledge combination (Xue Huijuan, Wang Duanxu & Zhang Dongfeng, 2009). However, the military industry as a national strategic industry, the researchers innovation activities is different from ordinary R & D personnel, who have extremely distinct personality characteristics, such as strong national defense mission, independent innovation, strict confidentiality, periodic long, high work

autonomy and relatively independent values (Zhang Jianwei, Zhou Jie, Li Haihong & Xuan Xinyu, 2020), so only paying its fixed salary equivalent labor does not mean a high labor investment efficiency, which means that there may be a serious entrustment problem between the management of the enterprise and the workers engaged in innovative activities, and the workers will passively respond to the innovative activities of the enterprise. In view of this, the following assumptions are made:

H5: The inflow of R & D personnel plays a negative role in regulating the relationship between political correlation and enterprise technology innovation performance.

The theoretical analysis model is shown in Figure 1:

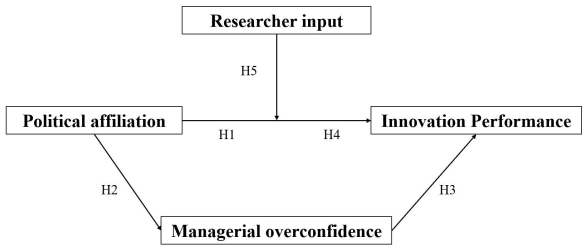

Figure 1. Research hypothesis model

3. Research Design

3.1 Sample Selection and Data Source

The data scope of this study is derived from the research data of the samples of military industry sector of A-share listed companies from 2010 to 2019. In order to ensure the robustness of the research findings, this paper selects samples according to the following criteria: excluding ST and *ST samples, samples with missing and abnormal data of key indicators. The unbalanced panel data consisting of 2205 observations of 320 enterprises are finally obtained after screening.

The data of patent applications in this paper are mainly obtained from the China Patent Database of the State Intellectual Property Office; the data of political affiliation are collected and organized from the database of Political Background of Directors and Supervisors in the character characteristics series of Guotaian database; the data of managerial overconfidence, R & D personnel and other corporate financial data are mainly obtained from company annual reports and Guotaian database. Because the data of R & D personnel before 2015 is not unified, so the data of R & D personnel before 2015 is replaced by the data of technical personnel in annual reports.

3.2 Definition of Variables

3.2.1 Explanatory Variable: Enterprise Innovation Performance (AP)

Innovation performance is a measure of a enterprise's innovation output, and the main measures of existing studies include the enterprise 's R & D investment, the number of patent applications and the number of patents granted, etc. (Xiong Aihua, Zhang Zhibin & Zhang Han, 2021) Considering the availability of data, this paper refers to Xiong, Aihua (2021) and others (Xiong Aihua, Zhang Zhibin & Zhang Han, 2021) and selects the number of patent applications (including invention patents, utility model patents and design patents) as a measure of enterprise innovation performance. And the number of invention patent applications (AIP) was used for robustness testing.

3.2.2 Explanatory Variable: Political Connection (PC)

There are three main methods for measuring political connection in current research: (1) director and supervisors; (2) measuring corporate political affiliation index; and (3) political affiliation variable. In this paper, political affiliation is measured by referring to the study of Tang Song (2014) and other scholars (Tang Song & Sun Zheng, 2014). If the directors and supervisors of the enterprise have persons who serve or have served in the Central Committee, the National People's Congress, the Chinese People's Political Consultative Conference, the All-Party Congress, local people's governments at all levels, and other institutional departments, a political affiliation is identified (Fan J P H, Wong T J & Zhang T, (2014; Tang Song & Sun Zheng, 2014) and the PC value is taken as 1, and vice versa is 0.

3.2.3 Mediating Variable: Managerial Overconfidence (OC)

Up to now, the main measures of managerial overconfidence in domestic and international studies include: the corporate prosperity index

and entrepreneurial confidence index measured at the macro level, the measurement of media evaluation (Aktas N, Louca C & Petmezas D, 2017), the percentage of change in managerial shareholding (Ahmed A S, Duellma S. 2013), the execution of managerial stock options (Lee J. M., Hwang B. H. & Chen H. L., 2017), and the relative compensation share of managers (Zhang, R. J., 2021) measured at the micro level. Given the availability of data and the objectivity and fairness of the data, this paper refers to Zhang Ruijun's (2021) study to measure the managerial overconfidence, which is the ratio of the sum of the top three executives' compensation to the sum of all executives' compensation to all executives' compensation in the company, with the value greater than the median being 1 and the opposite is 0.

3.2.4 Moderating Variable: The Inflow of R & D Personnel (LIE)

According to the existing literature, drawing on the definition of Groizard et al. (2015) (Groizard J L, Ranjan P & Rodriguez-Lopez A, (2015) and referring to Kao-Lei Guan (2021) (Guan Kaolei, 2021), the rate of change in the number of corporate R & D staff is used to measure the inflow of corporate employees, i.e., the annual growth rate of active R & D staff, which is equal to the natural logarithm of the number of active R & D staff in the current year compared to the number of active R & D employees in the last year.

3.2.5 Control Variables

Regarding the factors influencing enterprises' innovation performance, this paper refers to existing studies (Liu Wei, Chen Duosi & Wang Hongwei, 2020) and selects several control variables such as enterprise size (SCALE), enterprise growth (GROTH), enterprise leverage level (LEV), asset liquidity (GAR), and total asset turnover ratio (TAT). Enterprise size is measured by the natural logarithm of total assets; enterprise growth is measured by the growth rate of main business income; total asset turnover is measured by operating income/(total assets at the beginning of the period + total assets at the end of the period)/2; enterprise leverage is expressed by gearing ratio; and asset liquidity is the current asset ratio.

The specific indicators are shown in Table 1:

Table 1. Research hypothesis model

Variables		Indicator setting
Explained variables	Innovation Performance (AP)	Natural logarithm of the number of patent applications plus 1
	Innovation Performance (AIP)	Natural logarithm of the number of invention patent applications plus 1
Explanatory variables	Political connection (PC)	Whether the chairman of the board serves or has served in the government or other relevant departments, yes, take 1, otherwise take 0
Intermediate variables	Managerial overconfidence (OC)	(1) The sum of the compensation of the top three executives in the company / the sum of the compensation of all executives. (2) Comparison with the median compensation of all executives in the company. (3) Greater than taking 1, and vice versa for 0.
Adjustment variables	The inflow of R & D personnel (LIE)	Ln (number of active employees in the current year / number of active employees in the last year)
Control variables	Enterprise size (SIZE)	Natural logarithm of total assets
	Enterprise gearing ratio (LEV)	Total liabilities / total assets
	Growth	Operating profit growth rate = (current period main business

	(GROWTH)	income - previous period main business income) / previous period main business income
	Current Assets Ratio (GAR)	Current Assets / Total Assets
	Total Assets Turnover Ratio (TAT)	Operating Income / [(Total Assets at Beginning of Period + Total Assets at End of Period) /2

2.3 Model Setting

2.3.1 Benchmark Model

The benchmark model in this paper is constructed as follows:

$$AP = \beta_0 + \beta_1 PC_{it} + \sum_{m=1}^{5} \beta_{1+m} CV_{mit} + \varepsilon_{it} \quad (1)$$

where i and t denote firm and year, CV_{mit} denotes control variables, and ε_{it} denotes random disturbance terms.

2.3.2 Mediating Effect Model

Referring to the test of Wen Zhonglin (2004) (Wen Zhonglin, Zhang Lei & Hou Jietai et al, 2004), several models for mediating effects are added in this paper as follows:

$$OC = \alpha_0 + \alpha_1 PC_{it} + \sum_{m=1}^{5} \alpha_{1+m} CV_{mit} + \varepsilon_{it} \quad (2)$$

$$AP = \delta_0 + \delta_1 OC_{it} + \sum_{m=1}^{5} \delta_{1+m} CV_{mit} + \varepsilon_{it} \quad (3)$$

$$AP = \varphi_0 + \varphi_1 PC_{it} + \varphi_2 OC_{it} + \sum_{m=1}^{5} \varphi_{1+m} CV_{mit} + \varepsilon_{it} \quad (4)$$

2.3.3 Moderating Effect Model

The moderating effect model is constructed in this paper as follows:

$$AP = \omega_0 + \omega_1 PC_{it} + \omega_2 LIE_{it} + \omega_3 PC_{it} * LIE_{it} + \sum_{m=1}^{5} \omega_{1+m} CV_{mit} + \varepsilon_{it} \quad (5)$$

Where denotes the interaction term between political affiliation and R&D staff inflow.

4. Empirical Analysis

4.1 Descriptive Statistics

By analyzing the main indicators of the data of the sample military enterprises from 2010 to 2019, it can be found that: although in general, the annual innovation performance of military enterprises does not fluctuate much, the maximum and minimum values have a more obvious difference and the standard deviation is greater than 1, which indicates that there is a certain difference in the innovation performance of different enterprises. From the distribution of political relevance, about 31.2% of the enterprises have political affiliation background, indicating that only a small number of military enterprises have political affiliation within the company. From the results of descriptive statistics of managerial overconfidence, the phenomenon of managerial confidence is commonly found in military enterprises. It is noteworthy that the data of R & D personnel inflow in military enterprises in the past ten years shows that the inflow rate of R & D personnel in military enterprises is low.

Table 2. Descriptive statistics of variables

Variables	Sample size	Average value	Standard deviation	Minimum value	Maximum value
AP	2205	2.0474	1.5660	0	7.5192
PC	2205	0.3120	0.4634	0	1
OC	2205	0.4766	0.4957	0	1
LIE	2205	0.0751	0.4382	-3.2470	3.2598
SCALE	2205	21.9478	1.1302	19.5742	26.0591
LEV	2205	0.3862	0.1826	0.0139	0.9155
GAR	2205	0.6171	0.1509	0.0507	0.9822

TAT	2205	0.5536	0.3408	0.0077	3.8983
GROWTH	2205	0.4600	4.8371	-90.3478	43.0424

4.2 Correlation Analysis

The correlation coefficients among the variables were determined and found that, except for the correlation coefficient between enterprise size and gearing ratio, which was 0.6220, the correlation coefficients among the variables were below 0.500, and the direction of the correlation coefficients was basically consistent with several research hypotheses set in this paper, indicating that the research hypotheses have some validity. The VIF test was further conducted for each model, and the values of each explanatory variable were all around 1, indicating that there was no multicollinearity in the model.

Table 3. Correlation analysis among the variables

	AP	PC	OC	LIE	SCALE	LEV	GAR	TAT	GROWTH
AP	1								
PC	0.1043	1							
OC	-0.0896	-0.0790	1						
LIE	-0.0075	-0.0088	0.0125	1					
SCALE	0.0633	-0.0382	-0.1174	-0.0135	1				
LEV	0.0094	-0.1427	-0.0819-	-0.0507	0.6220	1			
GAR	0.0288	-0.0713	-0.0189	0.0223	-0.0776	-0.0660	1		
TAT	0.1237	0.0066	-0.0222	-0.0062	0.1422	0.1938	0.1096	1	
GROWTH	0.0014	-0.0051	-0.0229	0.1020*	0.0247	-0.0291	0.0832	0.0544	1

4.3 Main Regression Results

Since the Hausman test results show that the model is more suitable for using fixed effects, this paper chooses fixed effects to control for the effect of vintage heterogeneity and conducts regression tests for models (1) to (5). In addition, the paper sets the moderating effect of R & D personnel inflow in the relationship between political affiliation and enterprises' technological innovation performance in model (5). Considering the problem that the explanatory and moderating variables are highly correlated with their interaction terms, the explanatory and moderating variables are centered in this paper. The regression results are shown in Table 5 below.

Table 4. Regression results of political affiliation and firm's technological innovation performance

Variables	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
	AP	OC	AP	AP	AP
PC	0.2345*	-0.1325***		0.2198*	0.2304*
OC			-0.1174**	-0.107*	
PC*LIE					-0.2036*
SCALE	-0.2889***	0.0822***	-0.2844***	-0.2798***	-0.2883***
LEV	0.2173	-0.1970*	0.1460	0.1955	-0.2056
GAR	-0.7238***	0.1985**	-0.7026***	-0.7019***	-0.7036***

TAT	-0.1452	-0.0278	-0.1401	-0.1482	-0.1382
GROWTH	-0.0032	-0.0014	-0.0037	-0.0033	-0.0030
C	8.7584***	-1.318***	8.8000***	8.6125***	8.8056***
R2	0.0248	0.0163	0.0250	0.0267	0.0270
F-value	3.01***	5.17***	8.02***	7.34***	6.50***
Sample size	2205	2205	2205	2205	2205

Note: *, ** and *** indicate significant at the 10%, 5% and 1% statistical levels, respectively (same below).

The regression results of model (1) show that the coefficient of political affiliation is significantly positive at the 10% level, indicating that political affiliation has a catalytic effect on enterprises' technological innovation performance, and the H1 hypothesis is verified. Referring to the process of mediating effect test by Wen Zhonglin (2004) (Wen Zhonglin, Zhang Lei & Hou Jietai et al, 2004), the regression analysis of model (2) and model (3) is conducted in the case that model (1) is significant, and from the regression results of model (2) and model (3), the coefficient of political affiliation is significantly negative at the 1% level, indicating that there is a significant negative relationship between political relevance and managerial overconfidence. Also, managerial overconfidence also negatively affects firm innovation performance at the 5% significance level, and the hypotheses of H2 and H3 are verified, so the next multilevel regression analysis can be conducted. The regression results of model (4) show that after adding the managerial overconfidence variable to model (1), the coefficient of political affiliation, although still significant, increases from 0.0248 to 0.0267 in R2, which indicates that managerial overconfidence plays a partial mediating effect in the relationship between political correlation and corporate innovation performance, i.e., the promotion effect of political affiliation on enterprise innovation performance in military enterprises, which part of the reason is achieved through political affiliation to reduce managerial overconfidence, as verified by H4. In addition, the regression results of model (5) show that the coefficient of the interaction term between political affiliation and R & D personnel inflow is negative and significant at the 10% significance level, combined with the results of model (1) on the contribution of political affiliation to firm innovation performance, which suggests that there is a significant negative moderating effect of R & D personnel inflow on the relationship between political affiliation and firm technological innovation performance. This means that there is no information symmetry between R & D personnel and politically connected managers. That is, the higher the inflow of R & D personnel, the stronger the inhibitory effect of political affiliation on firms' technological innovation performance, which means that there is no information symmetry between R & D personnel and politically affiliated managers, and there is a certain principal-agent problem, as verified by H5.

4.4 Robustness Test

This paper performs robustness tests by replacing the explanatory variable measures. Referring to the research method of Liu Wei (2020) and others, the natural logarithm of the number of invention patent applications plus 1 is used as the explanatory variable for the robustness test (Liu Wei, Chen Duosi & Wang Hongwei, 2020). The regression results show that the coefficient of political association in model (1) is significantly positive at the 1% level, which is consistent with the original hypothesis results. The results of model (2), model (3) and model (4) also provide further evidence that managerial overconfidence plays a partially mediating role in the relationship between political affiliation and firm innovation performance. The interaction term between political affiliation and R & D staff inflow in model (5) is negative at the 10% significance level, and the robustness test results remain consistent with the original results, which verify the robustness of the findings of this paper.

Table 5. Robustness test results of political affiliation and firms' technological innovation performance

Variables	model（1）	model（2）	model（3）	model（4）	model（5）
	AP	OC	AP	AP	AP
PC	0.3663***	-0.1325***		0.3540***	0.3621***
OC			-0.1036**	-0.092*	
PC*LIE					-0.1566*
SCALE	-0.1805***	0.0822***	-0.1803***	-0.1729***	-0.1828***
LEV	0.2212	-0.1970*	0.1232	0.2029	-0.2188
GAR	-0.5005**	0.1985**	-0.4832***	-0.4821***	-0.4887**
TAT	-0.1068	-0.0278	-0.0963	-0.1094	-0.1032
GROWTH	-0.0018	-0.0014	-0.0026	-0.0019	-0.0020
C	5.4778**	-1.318***	5.6576***	5.355***	5.6329***
R2	0.0194	0.0163	0.0153	0.0212	0.0211
F-value	6.20***	5.17***	4.86***	5.80***	6.50***
Sample size	2205	2205	2205	2205	2205

5. Further Study

To further investigate the relationship between political affiliation and corporate innovation performance of military enterprises, this study refers to previous studies to classify political affiliation into four strata, which are central, provincial, municipal, and county (district) levels (Hu Guoliu & Zhou Sui, 2012).

Table 6. Results of the study of sub-level political affiliation on innovation performance of military enterprises

Variables	Central	Provincial	Municipal	County (District)
	AIP	AP	AP	AP
PC	-0.3250*	-0.0031	0.3063*	0.2699
SCALE	-0.2917***	-0.2946***	-0.2943***	-0.2897***
LEV	0.1450	0.1658	0.1835	0.1642
GAR	-0.6985***	-0.7261***	-0.7411***	-0.7086***
TAT	-0.1501	-0.1363	-0.1445	-0.1578
GROWTH	-0. 0038	-0.0036	-0.0035	-0.0036
C	8.9331***	8.9716***	8.9190***	8.8575***
R2	0.0247	0.229	0.0246	0.0238
F-value	7.94***	7.35***	7.89***	7.63***
Sample size	2205	2205	2205	2205

Table 7. The role of R & D personnel inflow in the impact of political affiliation on innovation performance of military companies at all levels

Variables	Central	Provincial	Municipal	County (District)
	AP	AP	AP	AP

PC	-0.3341*	0.0054	0.3046*	0.2705
PC（Central）*LIE	-0.3960**			
PC（Provincial）*LIE		-0.1241		
PC（Municipal）*LIE			0.0708	
PC（County）*LIE				-0.1415
SCALE	-0.2908***	-0.2949***	-0.2930***	-0.2892***
LEV	0.1502	0.1721	0.1853	0.1624
GAR	-0.6817***	-0.7184***	-0.7426***	-0.7003***
TAT	-0.1449	-0.1321	-0.1447	-0.1604
GROWTH	-0.0039	-0.0036	-0.0034	-0.0036
C	8.8973***	6.9237***	6.8987***	6.8076***
R2	0.0277	0.233	0.0247	0.0240
F-value	7.63***	6.41***	6.79 ***	6.58***
Sample size	2205	2205	2205	2205

The results in Table 7 show that there are significant differences in the effects of political affiliation at different levels on the innovation performance of the firm. Specifically, the management of military enterprises with municipal-level political background can effectively promote the enterprise' innovation performance, which indicates that managers with municipal-level background have more adequate information exchange with the local government, and the local government can provide support to the enterprise more accurately. However, managers with a central background have a curse effect on the innovation performance of military enterprises, indicating that there is a certain management barrier between managers with a central background and enterprises. However, since the previous part of the study shows that the effect of managers with political affiliation on enterprises' innovation performance is positive in terms of the whole firm, this suggests that the negative effect of managers with central background is offset by the positive effect of managers with municipal level background. Moreover, from the results in Table 8, analysis of the moderating effect of R & D personnel inflows for political affiliations at each level shows that R&D personnel inflows only play a moderating role in the effect of political affiliations on firms' innovation performance at the central level, and this effect is negative, which also explains the problem of why the inflow of R&D personnel reduces enterprises' innovation performance from the side.

5. Research Conclusions and Policy Implications

Although there has been literature related to corporate innovation performance from the perspective of political affiliation, such research is not yet complete, so this paper focuses on the focus of previous research on the divergent relationship between political relevance and corporate innovation. Based on the data of 320 Chinese military listed enterprises from 2010 to 2019, using an unbalanced panel model to explore the political affiliation from two aspects, namely managerial psychological characteristics and human resources perspective on the innovation performance of military enterprises. The results of the study indicate that for military industry enterprises, top managers with political affiliation have a facilitating effect on enterprises innovation performance. Although further research indicates that managers with a central-level background have a negative effect on the innovation performance of military firms, this effect is offset by the positive effect of managers with a municipal-level background. Meanwhile, the study demonstrates that part of the contribution of political affiliation to firms' innovation performance is achieved by acting to reduce

managerial overconfidence. In addition, the inflow of R & D personnel produces a negative moderating effect in the relationship between political affiliation and firm innovation performance, which is associated with managers with a central-level background. The findings of this paper enrich the impact of political affiliation and firm innovation performance from a human capital perspective, and also provide some decision-making references on how military companies can optimize their management teams and improve their own innovation performance.

The findings of this paper have the following policy implications: First, military enterprises should correctly measure the positive role played by establishing political connections. Although the establishment of political connections between military enterprises and the government promotes the innovation performance of enterprises to a certain extent, the management's access to external information is not fully integrated with the knowledge and skills of the enterprise's R & D masters, which in turn creates a certain principal-agent problem. Facing the urgent transformation of China's economic development and the multi-pattern international situation, military enterprises, as an important part of the national defense and military strategy, should focus more on the long-term development of their top managers, not only on the instrumental nature of political association, but also on the characteristics of R & D personnel, and on the complementarity between R & D personnel and top managers, especially those with a central-level background and R & D personnel to improve the information exchange between the two and achieve a greater effect on the basis of access to external innovation resources. Secondly, for the government, it should pay more attention to the market demand of enterprises with military characteristics and actively create a more powerful development environment for military enterprises. On the one hand, it should attach importance to the inflow of R & D personnel of military enterprises, and formulate relevant talent introduction policies to help military enterprises inject innovative vitality; on the other hand, the government should establish and improve corresponding financing channels, reduce financing interest rates, and help military enterprises solve the huge financial pressure faced by high R & D investment, so as to motivate them to increase R & D investment; in addition, the government should also improve corresponding patent protection mechanism and property rights trading mechanism, and maintain the patent protection mechanism. In addition, the government should also improve the corresponding patent protection mechanism and property rights trading mechanism to protect the rights and interests of enterprises' independent innovation and provide strong institutional guarantee for enterprises' technological innovation.

In this paper, there are still some problems to be explored in depth. Firstly, given the difficulty of collecting information, the research object of this paper only includes listed military enterprises, but do these problems also exist for non-listed military enterprises? Secondly, the statistical data in this paper found that the inflow of R & D personnel in military enterprises is low, so do military enterprises have redundant or insufficient R & D employees? How to solve this problem? To address the above questions, the author will continue to explore more comprehensively and deeply to improve the development environment of military enterprises in the future.

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