The Impact of Family Control on Corporate Strategic Change based on the Moderating Effect Innovation Atmosphere

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Abstract. Family control plays an important role in the strategic change of family businesses. Based on the research sample of listed family enterprises from 2010 to 2021, this paper explores the impact of family control on corporate strategic change and the moderating effect of innovation climate. The study finds that family control has a negative impact on corporate strategic change. Specifically, high family control will lead to social-emotional wealth, managerial short-sighted behavior, and "manager digging", thereby reducing the degree of strategic change in family businesses. However, due to the impact of innovation investment on family control, a strong atmosphere of innovation will weaken the negative impact of family control on strategic change. The research enriches the factors influencing the strategic change of family enterprises, and is also referential to the development of enterprises.

Keywords: Family Control; Strategic Change; Innovation Atmosphere.

1. Introduction

At present, most domestic enterprises are subject to the impact and challenges of the inherent economic system, economic structure transformation, and knowledge-based economy, and enterprises will also face major challenges such as "second start-up" and sustainable development of enterprises. In addition, after the outbreak of the epidemic in 2019, domestic economic development has entered a slow or even halting stage, and the development of enterprises is undoubtedly an important part of economic development. Yang Xiong, a scholar of the Western Han Dynasty, said in "Fa Yan - Asking the Way": "Can be then cause, or else the revolution". Everything that is suitable for the current stage of the strategy will continue to inherit, everything that does not meet the current stage must be changed. In today's diversified and competitive world, only companies that are good at changing themselves can gain more survival and development, and the strategic "adaptability" and "change" are important rules for sustainable management. [1]

Studies on the impact of strategic change have discussed the factors that influence the degree of strategic change from the perspectives of external environment, firm performance, CEO change, expectation gap, and organizational memory. Wang Zhen et al [2] pointed out that the higher the control of family firms, the stronger the control of innovation decisions from within the family and the short-sighted behavior towards innovation inputs, which indicates their risk aversion. According to socio-emotional wealth theory, constrained social wealth is not conducive to society to make innovative changes, and family control emphasized by maintaining socio-emotional wealth can also lead to family exclusion of external resources and inhibit innovative activities. There is a dearth of research on how specifically the degree of family control over firms affects strategic change, and it is worth exploring how the corporate innovation atmosphere plays a role in the middle.

Based on this, this paper explores the following two issues: (1) the impact of family control on strategic change in the firm, and (2) how the moderating effect of the intensity of the innovation atmosphere affects the relationship between the above two, which can provide guidance for family firms on how to improve strategic change, exercise appropriate control over the firm, and create a favorable innovation atmosphere.

2. Literature Review and Research Hypothesis

2.1 Literature Review

Corporate strategic change is a combination of a firm's external environment and internal resources. In terms of the firm's external environment, Tian Qing and Gu Zijia [3] showed that the better the business environment, and thus the higher the degree of strategic change of the firm. In terms of dynamic environment, Weihong Chen and Xi Zhong [4], on the other hand, show that the convergence of dual expectations (historical, social) fall enhances strategic change, and Bednar et al [5] suggest that negative media coverage of firms motivates strategic change, while for economic operations in terms of money, Yang et al [6] argue that an easy monetary policy will allow firms to implement a greater strategic change to a greater extent.

In terms of internal resources, Yan-Ling Lian and Xiaogang He et al [7] scholars confirmed that of personnel characteristics such as CEOs and executives are important factors influencing strategic change, and Zi-Jian Li and Gui-Hong Niu et al [8] showed that gender differences among the executive team have a positive impact on firm competitiveness, as well as a positive impact on strategic change. Meanwhile, Dai Yiyi et al [9] confirmed that the relationship between two similar backgrounds such as the core chairman and general manager of executive governance affects the decision of strategic change. On the organizational side, Liu, Haijian [10] showed that different dimensions of their rigid characteristics have opposite effects on strategic change, and Cao, Xiaofang [11] et al. proposed that interactions between subgroups within the board of directors based on the disconnected status attributes have a positive effect on the strategic change of the firm. In conclusion, most of the existing studies on family firms focus on the personal characteristics of managers and the impact of intergenerational family differences on strategic change, but there is less literature on the study of equity structure and internal hierarchy on strategic change, and for family firms, the degree of control of family control, on the impact of strategic change of the firm has not been presented with a clear view.

2.2 Hypothesis Formulation

2.2.1 Family Control and Strategic Change of the Firm

Regarding the influence of the person in effective control on strategic change, Bethel and Liebeskind et al [12] state that firm owners influence the discretion of managers in strategic change to ensure their goals, for example, by establishing governance structures. Thus, majority shareholder ownership influences strategic change. agHion [13] et al. argue that family control plays an important role in corporate governance, that control has a strong influence on corporate legacy and aspects of corporate values, and that family firms place a high value on control. chandler [14] et al. point out that family firms are too conservative with respect to the implementation of strategic change. On the one hand, Zellweger [15] et al. point out that the higher the share of family control, the more decisions are made in favor of protecting socio-emotional wealth, then the less openness to innovation of family control, then the less likely the firm is to make strategic changes. Second, the lack of innovation from their own interests, the high risk of strategic change, the family management decision makers prefer to maintain the existing form of operation rather than face short-term losses, there is short-sighted behavior, and therefore also reduce the willingness to strategic change. Furthermore, Xu et al [16] argue that the higher the degree of family control, the easier it is to form a "managerial rift" and the more likely it is for firms to hire family members, but family members may not have high expertise, so it greatly affects the ability to make strategic changes.

By analyzing the existing literature, the concentration of control in family firms, as well as the influence of social wealth theory, will make the controller more inclined to conservative management, for which the first hypothesis is proposed:

H1: Family control has a negative effect on strategic change of the firm.

2.2.2 The Moderating Role of Innovation Atmosphere

In this paper, we adopt innovation input intensity to measure the innovation atmosphere of a firm, and innovation input intensity reflects the innovation level of a firm to a certain extent. Chen Ming and Yu Wen [17] suggested that innovation becomes an important initiative for firms to have core competitiveness, and sustainable innovation can drag the strategic change of a firm. First, the competitive pressure is enhanced in a high innovation environment atmosphere, and for firms, Xin Li et al [18] argued that when firms face potential losses, the pursuit of economic benefits far outweighs non-economic benefits, and the pursuit of socio-emotional wealth is reduced to a certain extent, forcing the firm to change, thus weakening the inhibiting effect of family control on strategic change. At the same time, in a good innovation environment, the negative effect of family control on innovation inputs will be weakened, and thus strategic change will be enhanced to some extent. On the other hand, Cheng Xi et al [19] pointed out that with high innovation intensity, the demand for high-level professionals increases, for hiring employees among family members decreases, and bringing in more external talent will promote the ability of strategic change. Based on this, this paper leads to the second hypothesis:

H2: The negative effect of family control on strategic change will be weakened by an increase in the innovation atmosphere.

Based on the above hypothesis, the conceptual model of this paper is as follows:

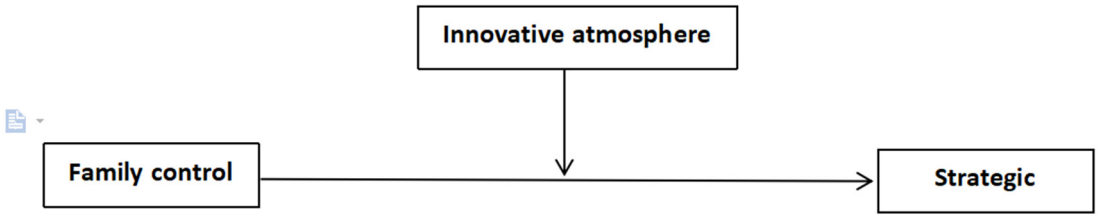

Fig 1. The conceptual model of this paper

3. Research Design

3.1 Sample Selection and Data Sources

For the definition of family enterprises, drawing on the definition of family enterprises by Qilin Su and Xiaogang He et al [20], this paper defines family enterprises as those in which the actual controller of the enterprise is traceable to the family or a natural person, and the proportion of family equity is not less than 10%. This paper selects listed family enterprises in Shanghai and Shenzhen Exchange from 2010-2021 as the research sample, with a sample size of 14,026, and the data are obtained from the CSMAR database. The initial data are screened according to the following criteria: (1) exclude companies in the ST and PT categories; (2) exclude those with missing values (3) to eliminate the effect of extreme values, all variables in the paper are treated with a top and bottom 1% shrinkage (Winsored).

3.2 Definition of Variables

3.2.1 Explanatory Variables

Strategic change (ST). It is defined as the adjustment of a firm's strategy in response to changes in the internal and external environment in order to sustain growth. Referring to the research approach of Meng Xiangzhan and Zhu Zhenduo [21] and others, strategic change is measured in terms of the following six dimensions: (1) intensity of advertising and promotion investment (sales expense/sales input), (2) speed of fixed assets renewal (net fixed assets/ original value of fixed assets), (3) capital intensity (fixed assets/number of employees), (4) R&D intensity (R&D expense/sales revenue), (5) financial leverage (sum of short-term borrowing, long-term borrowing, and bonds payable/owner's equity), and (6) overhead input ratio (overhead/operating revenue). Next, the change values of each

indicator in year t and year t-1 of the sample companies are calculated, and the change value of the subchange is subtracted from the change value of the median of this industry in order to control for industry effects. And the indicators are standardized separately and the absolute values are taken. Finally, the six indicators were averaged to obtain the required comprehensive strategic change index.

3.2.2 Explanatory Variables

Family control (Famcon). Referring to the study of Wang Zhen and Qi Ya [22] and others, the proportion of control owned by family members in all the effective controllers of the sample listed companies was selected based on the consideration of the totality of family enterprises, and the calculation was combined if the effective controllers of the sample companies were more than one person.

3.2.3 Moderating Variables

Innovation atmosphere (RE). In this paper, the innovation atmosphere is measured by innovation input intensity (RD), starting from the perspective of the influence of family control on strategic change, and borrowing from Huang, J. and Chen, Xinyuan [23], the ratio of corporate R&D investment to main business revenue is used as a measure of innovation input intensity, because the business results of the previous year will have an important impact on corporate innovation input decisions, so this paper takes innovation input The lag of one period is used as the moderating variable.

3.2.4. Control Variables

According to the influence of heterogeneity of control subjects on strategic change, the following control variables are selected in this paper: gender of general manager (Gender), shareholding ratio of general manager (HdirProp), percentage of sole director (PID), asset-liability ratio (ALR), operating income (BI), and current ratio (FR). The variables are specifically defined in Table 1. Do not number your paper: All manuscripts must be in English, also the table and figure texts, otherwise we cannot publish your paper. Please keep a second copy of your manuscript in your office. When receiving the paper, we assume that the corresponding authors grant us the copyright to use the paper for the book or journal in question. Should authors use tables or figures from other Publications, they must ask the corresponding publishers to grant them the right to publish this material in their paper. Use italic for emphasizing a word or phrase. Do not use boldface typing or capital letters except for section headings (cf. remarks on section headings, below).

Table 1. Variable definition table

Variable Type	Variable Name	Variable Code	Definition and Explanation
Explained variables	Strategic Change	ST	Six dimensions of advertising and promotion investment intensity, fixed asset replacement speed, capital intensity, R&D efforts, and overhead investment ratio to measure strategic change
Explanatory variables	Family control	Famcon	Proportion of control owned by all beneficial owners of family members in the sample listed companies
Moderating variables	Innovation input intensity	RD	Corporate R&D investment/main business income with a one-period lag as a moderating variable
Control variables	General Manager Gender	Gender	Gender of the general manager, male is 1, female is 0
	Shareholding ratio of general manager	HdirProp	Number of shares held by the general manager as a percentage of total share capital
	Percentage of sole director	PID	Number of independent directors in office / Total number of directors
	Gearing ratio	ALR	Total liabilities/total
	Operating income	BI	The sum of all revenues recognized in the course of business
	Current Ratio	FR	Current assets/current liabilities

3.3 Descriptive Analysis

Table 2 shows the descriptive statistics of the main variables. The results show that the mean value of family control (Famcon) is 16.1%, which indicates that the family control of the sample family firms is relatively high, which is consistent with most studies with a sample of listed family firms. Strategic change (ST) has a minimum value of 0, a maximum value of 1.138, and a mean value of 0.196, indicating a low level and a large variation in strategic change indices for the sample of local firms. The minimum value of corporate innovation investment (RD) with one period lag is 0, the maximum value is 0.265, and the mean value is 0.0488, indicating that there is also a large difference in the proportion of innovation investment among the different family firms in the sample.

Table 2. Descriptive statistics of the variables

Variable	N	mean	sd	min	max
Famcon	14,025	0.16	0.17	0.00	0.62
RD	14,025	0.05	0.05	0.00	0.27
ST	14,025	0.20	0.21	0.00	1.14
Gender	14,025	0.91	0.28	0.00	1.00
ALR	14,025	0.36	0.19	0.04	0.85
FR	14,025	3.27	3.47	0.50	21.97
HdirProp	14,025	0.10	0.15	0.00	0.58
PID	14,025	0.38	0.05	0.33	0.57
BI	14,025	20.96	1.19	18.41	24.39

3.4 Correlation Analysis

Table 3. Correlation analysis of variables

	Famcon	RD	ST	Gender	ALR	FR	HdirProp	PID	BI
Famcon	1	0.124***							
RD	0.124***	1							
ST	-0.035***	0.090***	1						
Gender	-0.006	0.031***	0.004	1					
ALR	-0.166***	-0.289***	0.079***	0.017**	1				
FR	0.139***	0.254***	-0.057***	0.001	-0.645***	1			
HdirProp	0.596***	0.139***	-0.020**	0.014*	-0.164***	0.137***	1		
PID	0.090***	0.076***	0.050***	-0.032***	-0.019**	0.011	0.099***	1	
BI	-0.185***	-0.307***	-0.002	0.038***	0.502***	-0.402***	-0.176***	-0.067***	1

Note: ***, ** and * denote 1%, 5% and 10% significance levels, respectively, as below.

In order to understand the correlation between the variables and the existence of cointegration, Table 3 shows the correlation analysis between the variables of the sample firms. As can be seen from the table, the correlation coefficient between family control (Famcon) and strategic change (ST) is -

0.035 and significant at 1%, which initially indicates a significant negative correlation between the two, which is in line with hypothesis 1 expectations. Secondly, there is a significant correlation between most of the variables and strategic change (ST), indicating a relatively good choice of control variables. The absolute values of the correlation coefficients between the other variables are relatively small, indicating that there is no serious variable covariance.

3.5 Analysis of Regression Results

According to the regression results shown in Table 4, model (1) is the baseline regression. In model (2), the regression coefficient of family control (Famcon) is -0.0454, which is significant at the 1% level, indicating that a high degree of control in family firms hinders strategic change in the firm, and hypothesis 1 is confirmed by adding the constraints of control variables. To test hypothesis 2, the regression coefficient of the interaction term of corporate innovation input (l.RD) and family control in model (3) with one lag is 0.859 and significant at the 1% level, indicating that the interaction term of corporate innovation input and family control exerts a significant positive moderating effect on strategic change, then as the atmosphere of corporate innovation increase, the negative effect of family control on strategic change will be weakened, and hypothesis 2 can also be confirmed.

Table 4. Regression analysis results

	Model (1)	Model (2)	Model (3)
Variable	ST	ST	ST
Famcon	-0.0393***	-0.0454***	-0.0809***
	(0.0100)	(0.0121)	(0.0186)
L.RD			0.0632
			(0.0781)
Famcon×L.RD			0.8590***
			(0.3300)
Gender		0.0066	0.0033
		(0.0058)	(0.0067)
HdirProp		0.0047	0.0431***
		(0.0139)	(0.0158)
PID		0.1430***	0.1120***
		(0.0332)	(0.0379)
BI		-0.0144***	-0.0249***
		(0.0020)	(0.0023)
ALR		0.1220***	0.1490***
		(0.0151)	(0.0169)
FR		0.0013*	0.0031***
		(0.0007)	(0.0009)
Constant	0.2030***	0.3970***	0.6470***
	(0.0024)	(0.0426)	(0.0500)
Time fixed effects	YES	YES	YES
Observations	14,025	14,025	14,025
R-squared	0.0540	0.0650	0.0340

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 2 shows that a high innovation atmosphere significantly weakens the negative effect of family control on strategic change, resulting in a rare positive correlation. Studies have shown that in a good innovation environment, where the market has a sound legal and financial and taxation system, more talent can be attracted and families have more control options over the firm and can invest in projects that better fit their needs, thus influencing strategic change [24].

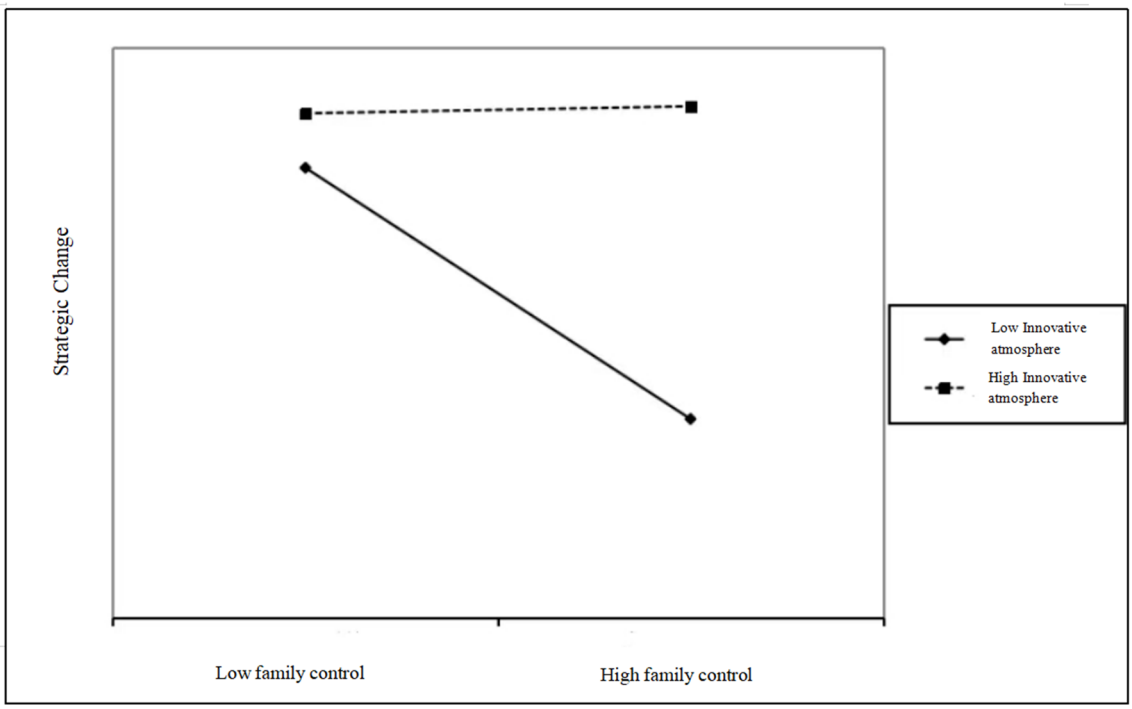

Fig 2. Impact of family control on strategic change in an innovative atmosphere

3.6 Robustness Test

3.6.1 Sample Splitting

Table 5. Robustness tests

	Model 1	Model 2
VARIABLES	ST	ST
Famcon	-0.0548***	-0.0830***
	(0.0151)	(0.0292)
Gender	0.0030	0.0084
	(0.0072)	(0.0128)
ALR	0.1360***	0.0979***
	(0.0188)	(0.0373)
FR	0.00022	-0.0020
	(0.0011)	(0.0028)
HdirProp	-0.0011	0.0259
	(0.0172)	(0.0341)
PID	0.1360***	0.0065
	(0.0399)	(0.0721)
BI	-0.0164***	-0.0214***
	(0.0024)	(0.0043)
Constant	0.4590***	0.6490***
	(0.0517)	(0.0943)
Observations	10,441	3,406
R-squared	0.0220	0.0150

Considering that policy shocks and changes in the external environment will have a large impact on family control and corporate strategic change, this paper uses sample splitting to conduct robustness tests: (1) based on the 2014 policy shock of corporate transformation and upgrading, the State Council has a series of requirements for industrial structure optimization, improvement of science and technology innovation-driven capacity, regulation of investment and financing environment, and advocacy of green intensive development, etc. The results show that there is no

substantial change in the direction of main effect and significance level after the split test, i.e., the above results can be accepted as having robustness. characteristics. (2) The severe external environment of the new crown epidemic in 2019 has seriously affected the labor market and product sales market due to the requirements of prevention and control, based on which many companies have made strategic adjustments to adapt to the situation, therefore, using 2019 as the cut-off point, the regression is conducted for the sample of "after the new crown epidemic [2019,2021]". The regression results are shown in Model 2 in the table below, and there is no substantial change.

3.6.2 Regional Tests

For different provinces, the government will adopt different measures such as tax incentives, innovation subsidies, and financial support to stimulate innovation as a way to promote technological innovation activities and increase R&D investment [25]. In order to control for the potential factor of region to influence the strategic change of family firms, the article further conducts a robustness test by fixing the regional effect, i.e., controlling for the province where the family firm is located, and the regression results are still significant as shown in Model I in the table below.

Table 6. Regional tests

	Model 1
VARIABLES	ST
Famcon	-0.0402***
	(0.0120)
Gender	0.0116**
	(0.00578)
ALR	0.115***
	(0.0150)
FR	0.000826
	(0.000676)
HdirProp	0.00325
	(0.0137)
PID	0.138***
	(0.0333)
BI	-0.0133***
	(0.00196)
Constant	0.374***
	(0.0424)
Observations	14,025
R-squared	0.080

3.6.3 Heckman Two-stage Test

Although the above two tests have yielded robust conclusions, studies have shown that firms that release information usually have the following characteristics: high firm-specific risk, more effective corporate governance system, etc. In order to alleviate the endogeneity problem caused by selectivity bias in the sample of family firms, this paper uses the heckman two-stage method for robustness testing. In the first stage, the new variable whether the sample firms undergo strategic change (IFST) is added, and the inverse Mills ratio (IMR) is obtained by regressing whether they undergo strategic change using the Probit model (Table7 Model 1), and for the second stage regression, the inverse Mills ratio (IMR) from the first stage is added to obtain the regression results of model (2). The results show that the regression coefficient of Audit is significantly negative at 1%, which is basically consistent with the main regression results.

Table 7. Heckman two-stage test

	(1)	(2)
VARIABLES	ST	ST
Famcon	-0.0553***	-0.0513***
	(0.0144)	(0.0144)
Gender	0.00403	0.0059
	(0.00665)	(0.0067)
ALR	0.169***	0.0828***
	(0.0137)	(0.0233)
FR	0.00355***	-0.0052**
	(0.000772)	(0.0021)
HdirProp	0.0471***	-0.0380
	(0.0159)	(0.0244)
PID	0.134***	0.3350***
	(0.0351)	(0.0561)
BI	-0.0297***	0.0063
	(0.00185)	(0.0081)
imr		0.4110***
		(0.0897)
Constant	0.742***	-0.1520
	(0.0416)	(0.1990)
Observations	11,469	11,469
R-squared	0.030	0.0320

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

4. Conclusion

This study takes listed family firms from 2010 to 2021 as the research sample, and based on the characteristics of variables and research objectives, this paper uses regression analysis to examine the impact of family control on corporate strategic change and the moderating effect of innovation atmosphere. The study concludes the following: (1) family control has a negative effect on strategic change in firms. Specifically, high family control creates socio-emotional wealth, short-sighted managerial behavior, and "managerial rift", thus reducing the degree of strategic change in family firms. (2) The negative effect of family control on strategic change is weakened by a strong innovation atmosphere due to the effect of innovation investment on family control.

Based on the above findings, the following management insights are obtained from this paper:

First, family firms should improve their corporate governance systems to establish more rational systems so that the degree of family control can be properly constrained. The measure of family control in this paper is the sum of the shareholdings of all the family effective controllers, and for most of the companies, the control of the family business is in the hands of the founders, who have absolute authority will make them produce irrational side, which will affect the company's decision making. For family companies, control is difficult to change from the shareholding structure, so it is especially important to establish a corresponding family monitoring system, such as regular family meetings and family committees to effectively monitor the actual family controllers. At the same time, there is a need for effective control of family control within the company. For example, the situation of "managerial rift" needs to be effectively avoided, and a fair and equitable personnel system should be established to attract high-level talents and improve the ability of strategic change of the company.

Second, it is indispensable for the government to establish a family business-related system to reduce the negative influence of family control on strategic change. Then, it is an important measure

to improve the innovation atmosphere of social enterprises. The universality of government policies to encourage enterprise innovation and development needs to be enhanced to strengthen the ladder of cultivation, promote enterprise innovation, and strengthen services for enterprises, so as to stimulate the emergence of more specialized and new SMEs. For example, changing the innovation training methods, raising the awareness of intellectual property protection, developing customized training programs for enterprises, and sending services into enterprises, etc. will drive enterprises to invest in innovation and thus force them to make strategic changes.

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