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Influence Mechanism of Intergenerational Inheritance on the Internationalization of Family Enterprises: The Mediating Role of The Degree of Industry Competition*

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Abstract: Based on data from Chinese family owned listed companies from 2009 to 2022, this article analyzes the impact of intergenerational inheritance of Chinese family owned enterprises on their internationalization. The research results indicate that: (1) intergenerational inheritance has a significant positive effect on the internationalization of Chinese family businesses; (2) Family business heirs with overseas backgrounds are more inclined towards internationalization of family businesses; (3) The degree of industry competition has a positive moderating effect between intergenerational inheritance and the internationalization of family businesses.

Keywords: family business; Intergenerational inheritance; Overseas background; Industry competitiveness; internationalization

I. Introduction

Family businesses, as an important emergency model for China's economic development, have significant implications for the country's economic growth. With the development of global economic integration, Chinese family businesses need to further expand their international market and enhance their competitive advantage in the international environment, which has become an important issue faced by enterprises. At the same time, with the development of Chinese family businesses for more than 30 years, intergenerational inheritance has also become a challenge faced by enterprises. Therefore, family businesses have entered a new era of development where family inheritance and strategic transformation go hand in hand (Yang Zhiqiang, Wang Yijie, 2018). As is well known, in the Chinese economic system, more than 80% of private enterprises are owned or controlled by families. As the oldest form of enterprise organization in human history, family businesses still show unique competitive advantages and strong vitality in today's fierce market competition, and play an important role in the healthy development of the Chinese economy and society that cannot be ignored (Howard E Aldrich&Jennifer E Cliff, 2003).

Intergenerational inheritance is an important component of family business research. There are currently two main perspectives on the impact of intergenerational inheritance on internationalization in family businesses. One is the perspective of successor characteristics. Some scholars believe that as second-generation family members succeed, the existence of family member managers from different eras in family businesses will to some extent constrain each other and form an organizational culture that encourages adventurous tasks, This continuously frees the organization from its original way of survival, thereby increasing opportunities for international expansion (Zahra, S. A.,&Sharma, P. (2004)). But some studies have also pointed out that as an individual with different emotional needs from the founder, the weaker family business emotions of the second generation may not have long-term investment motivation (Liang, Y, 2018). Secondly, based on the perspective of inheritance intention and rights involvement, Fernandez, R. M.,&Sosa, M. L. (2005) found through empirical research that there is a positive correlation between internationalization commitment and the degree of enterprise internationalization process and intergenerational inheritance. This study indicates that family businesses with enterprise inheritance intention will further deepen their internationalization commitment and degree after intergenerational inheritance. Chinese scholars have pointed out through sample analysis of Chinese enterprises that when the founder of a family business has a stronger willingness to inherit the family business, the founder usually chooses to make longer-term investment plans for the organization (Li Yanshuang, Yang Sijie&Lv Ting, 2018).

The main contribution of this article is that, firstly, this study divides the cost inheritance successors of family businesses into those with overseas backgrounds and those without, further

expanding the research scope. Secondly, this study will use industry competitiveness as a moderating variable to further enrich the relevant theories of intergenerational inheritance on the internationalization of family businesses; Thirdly, this study measures the depth and breadth of internationalization of family businesses, which will provide reference for future research on the internationalization of family businesses.

II. Theory and Hypotheses

2.1 Intergenerational Inheritance and Internationalization of Family Enterprises

When studying the current situation and problems of intergenerational inheritance and internationalization of family businesses, Li Xinchun, Zhang Pengxiang, and Ye Wenping (2016) proposed that when founders and second-generation heirs manage family businesses together, heirs are usually more able to discover new strategies and promote the improvement and upgrading of family businesses. Therefore, intergenerational inheritance will bring strategic changes to the enterprise. Claver, E., Rienda, L.,&Quer, D. (2009) found that the next generation inheritors of family businesses are often more inclined to initiate strategic changes to demonstrate their value. Therefore, the ability of family businesses to obtain high investment resources will increase with the intergenerational inheritance of the enterprise. According to Zhou Lixin's (2016) research based on the theory of social emotional wealth, if family leaders have the idea of passing on the business to future generations, they are more likely to be more willing to internationalize the family business. Catiora, M. C., Fusaro, L., Di Francesco, D., Ramella, M.,&Boccafoschi, F. (2019) used a qualitative case study method to find that the relationship between second-generation participation in family businesses and internationalization strategy is influenced by the potential relationship between current and successors. They believe that the intergenerational dynamics behind different inheritance patterns of a company will affect its commitment to internationalization and available resources for strategic initiatives.

Miguel Angel Gallo (1996) Research has shown that visionary successor entrepreneurs can promote the internationalization process of family businesses when taking over, which can prove that the internationalization of family businesses is directly related to intergenerational inheritance. There are also studies showing that the effective resources possessed by successor entrepreneurs can reduce internal transaction costs for enterprises, and they will also consider pursuing internationalization as a development strategy (Chen Ling and Wang Hao, 2013). Intergenerational inheritance helps to strengthen family control in the internationalization process of family businesses. If a family has a strong desire for success, family managers will be willing to choose internationalization as a long-term development strategy, extend the evaluation period of family international investment, and provide a broader development platform (Li Yanshuang et al., 2018). Li Xinchun, Han Jian, and Li Weiwen (2015) pointed out that due to the strategic vision of second-generation entrepreneurs, internationalization has become a concern for family businesses, especially with the goal of achieving long-term development. Internationalization has become the first choice for second-generation family entrepreneurs. Therefore, the following hypothesis is proposed:

H1: Intergenerational inheritance has a significant positive effect on the internationalization of family businesses.

2.2 Second generation overseas background and internationalization of family businesses

When studying the relationship between second-generation involvement with overseas backgrounds and the implementation of family business internationalization strategies, Miguel Angel Gallo (1996) pointed out that the next generation of family members with a background of returning home will have a better understanding of the international market, thus having a broader international perspective, which will promote the internationalization of family businesses through intergenerational inheritance. In order to adapt to the trend of globalization, more and more Chinese startups are choosing to send future entrepreneurs to study abroad or find employment overseas. After returning to China to inherit the family business, international students who have accumulated relevant experience abroad will provide theoretical and practical support for the internationalization of the family business, which can effectively reduce the risks of internationalization of the family business and largely eliminate the doubts of family members about nationalization. Compared with the second generation of family businesses that have grown up locally, the second generation with overseas backgrounds has a greater awareness of the differences in demand between foreign and local markets, and usually plays a key role in the transformation, modernization, and strategic implementation of family businesses (Lin Chuan, Zhao Yanqiu, 2023). Compared with the second generation in China, studying abroad allows them to have a better understanding of modern corporate

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governance models, a more proactive and responsive mindset, and the ability to discover favorable foreign mergers and acquisitions in the market and implement internationalization; In addition, compared to the local second-generation, the overseas background second-generation has not established good social relationships with suppliers, customers, and the government in China, and overseas training has led to a greater difference in their ideological identity with the founder. Therefore, the overseas returnee second-generation is more inclined to internationalize family businesses (Huang Haijie, Lv Changjiang, Zhu Xiaowen, 2018). Therefore, the following assumptions are proposed:

H2: Second generation inheritors with overseas backgrounds are more inclined towards internationalization of family businesses.

2.3 The moderating effect of industry competitiveness on the relationship between second-generation involvement and the internationalization of family businesses

As an industry level perspective in internationalization research, the impact of industry competitiveness on the internationalization of family businesses has also been widely discussed. Chen Jin, Wu Hang, and Liang Liang (2012) pointed out that when domestic competition becomes increasingly fierce, enterprises tend to make internationalization actions to expand overseas markets. Chen Zhibin and Wang Shiyu (2015) concluded from their research on overseas mergers and acquisitions of Chinese enterprises that when industry competition is low, market uncertainty is small, and the internationalization willingness of enterprises is also small. As competition intensifies, the likelihood of enterprises adopting aggressive competitive behavior to maintain their competitive advantage in a fiercely competitive environment also increases (Chen Zhibin and Wang Shiyu, 2015).

The degree of industry competition means the level of survival pressure that a company faces in its industry. Hermalin, B. E. (1992) found that compared to a low industry competition environment, a fierce industry competition environment can bring a sense of crisis to management. In order to avoid protests from other equity holders in the family business, managers usually act more actively; When the industry in which family businesses operate is highly competitive, their willingness to take offensive or defensive competitive actions is stronger (Chen Zhibin et al., 2015). Especially for family businesses with relatively small market share and scale, overseas market competition can help cope with survival challenges (Huang Liying and He Lerong, 2020). The industry competitiveness has a close relationship between the involvement of the second generation and the internationalization of family businesses. The increase in industry competition may motivate second-generation successors to actively participate in internationalization strategies and encourage them to play more specialized roles. At the same time, highly competitive industries also provide broader market opportunities and potential, encouraging family businesses to innovate and transform in order to achieve the goal of international development. Therefore, this article proposes the hypothesis:

H3: Industry competitiveness has a positive moderating effect on the relationship between second-generation involvement and the internationalization of family businesses

III. Research Design

3.1 Sample selection and data sources

This article takes the data of family businesses listed on the Shanghai and Shenzhen stock exchanges in China from 2009 to 2022 as the research object, and selects the data of family businesses listed on the A-share exchanges in Shanghai and Shenzhen as the initial sample. The main sources of family businesses are CSMAR, WIND, and CCER. The definition of family businesses draws on the research of Zhao Jing and Meng Weixuan (2016), and the conditions for defining family businesses are: (1) the actual controller is a natural person or a family; (2) The actual controller is the largest shareholder of the enterprise, and the shareholding ratio in the listed company is not less than 10%; (3) At least one person in the family of the actual controller holds shares in the enterprise or serves as a director or executive of the enterprise. And the samples were processed as follows: (1) ST companies and * ST companies were excluded from the samples; (2) Exclude samples from the financial industry and those with significant missing data; (3) Remove samples with unclear information about the final controller. (4) Exclude samples with missing financial data and outliers where individual overseas revenue exceeds total revenue. The final sample size includes 14573 annual observations from companies. The processing and verification of relevant data in this article were completed using software STATA 17.0.

3.2 Variable design

(1)The dependent variable

Internationalization of family businesses (INT). Drawing on Chen Limin's (2014) research, the internationalization of family businesses is

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measured by the proportion of overseas export sales revenue to the total sales revenue of the year. And measure from two aspects: the depth of internationalization and the breadth of internationalization. For the measurement of internationalization depth, this article measures the proportion of family business export revenue to annual sales revenue; In terms of the breadth of internationalization, this article measures the number of countries and regions involved in the export of family business products and overseas investment.

(2)Explanatory variables

Intergenerational Inheritance (II). Drawing on the research of Zhu Zhenduo, Li Xinchun, et al. (2018), the second generation who has not yet entered the family business is considered as having not undergone intergenerational inheritance. The complete withdrawal of the father generation and the autonomy of the second generation are used as indicators of intergenerational inheritance completion, with a value of 0. At the same time, those with overseas work or study experience (including both) are considered as second-generation (Over) with overseas background, and are recorded as 1. Those who do not meet the conditions are considered as having no overseas background and are recorded as 0.

(3)Adjusting variables

Competition degree of industry. Drawing on the classic econometric method of Chen Zhibin et al. (2015), the industry competitiveness is measured by the number of listed companies in the industry.

(4)Control variables

This article selects enterprise size (Size), enterprise age (Age), ownership concentration (Ownership), deviation rate between two rights (Dev), asset liability ratio (LEV), return on total assets (ROA), and proportion of international executives (IPE) as control variables.

(5)Model construction

To test the hypothesis proposed in this article, the internationalization of family businesses (measured by internationalization depth and width) is used as the dependent variable, intergenerational inheritance (II) and second-generation involvement with overseas background (Over) are used as explanatory variables, and enterprise size (Size), enterprise age (Age), equity concentration (Ownership), deviation rate (Dev), and asset liability ratio (LEV) are used Using the return on total assets (ROA) and the proportion of international executives to independent directors (IPE) as control variables, multiple multiple multiple linear regression models are constructed to analyze and test the impact of second-generation involvement on the implementation of family business internationalization strategies. To verify hypothesis H1, this article draws on the research method of Lin Chuan et al. (2023) and uses Logit regression and Tobit merge regression models to verify the impact of intergenerational inheritance on the internationalization of family businesses, as shown in equation (1).

$$Inter=\alpha_0+\beta_1 G_2+\gamma Controls+\sum Year+\sum Industry+\varepsilon \quad (1)$$

In the model, Inter represents the level of internationalization as the dependent variable, measured by the depth and width of internationalization. II represents intergenerational inheritance, and Controls is the control variable. If β If 1 is displayed as positive, it indicates that family businesses with intergenerational inheritance are more inclined to implement internationalization strategies, which can be used to verify hypothesis H1.

To verify hypothesis H2, this article draws on the research model of Lin Chuan et al. (2003), as shown in equation (2)

$$Inter=\alpha_0+\beta_1 Over+\gamma Controls+\sum Year+\sum Industry+\varepsilon \quad (2)$$

In Model (2), the explanatory variable is the second generation with overseas background (Over), and the other control variables and the dependent variable are consistent with Model (1). The relationship between the second generation with overseas background and the internationalization of family businesses is still tested using the depth and width of internationalization, which are respectively applicable to the Logit model and Tobit model. If in model (2) β If 1 is significantly positive, it can be used to verify hypothesis H2.

To verify hypothesis H3, based on the relevant research of Ma Chenhui (2022), the following empirical model is constructed to test the moderating effect (3):

$$Interi,t=\beta 0+\beta 1\times G_2i,t+\beta 2\times Numi,t+\beta 3\times INumi,t\times G_2i,t+\gamma Controls+\sum Year+\sum Industry+\varepsilon i,t \quad (3)$$

In Model (3), Numi and t represent industry competitiveness. The model mainly tests the moderating effect of industry competitiveness on intergenerational inheritance on the internationalization level of family businesses, β 3 is the interaction coefficient between industry competitiveness and second-generation involvement, representing its moderating effect.

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IV. Empirical analysis

4.1 Descriptive analysis

Table 1 shows the descriptive statistics of the research variables, where the mean of II is 0.230 and the standard deviation is 0.421, indicating that nearly 30% of Chinese family businesses have undergone intergenerational inheritance among all relevant observation samples; The mean over variable is 0.056, indicating that over 5% of Chinese family business heirs have overseas study backgrounds; More than 40% of family businesses have adopted an internationalization development strategy, but their level of internationalization is relatively low, with internationalization revenue accounting for about 10% of total revenue. As shown in Table 3, the mean depth of internationalization (Depth) of family businesses is 0.192, with a median of 0.082, indicating that the depth of internationalization of family businesses is generally not high, but there are family businesses that are completely export-oriented. The average width of internationalization is 1.128, indicating that the average overseas registration location of the sample family businesses is 1, with a median of 0, indicating similarity to the depth of internationalization, The overall internationalization breadth of the sample family enterprises is not high, but there are individual enterprises with high internationalization breadth, and there are significant differences between the samples; The average industry competitiveness (Num) is 111.782, with a median of 104, indicating that the industry competition in which Chinese family businesses operate is relatively fierce. Meanwhile, the correlation coefficients of the main variables are all less than 0.6, indicating a lower likelihood of multicollinearity (Table 2).

Table1 Descriptive statistics of the main variables

Variable	Mean	Standard deviation	Max	Min	Median
Depth	0.192	0.241	1.000	0.000	0.082
Width	1.128	2.121	42.000	0.000	0.000
II	0.230	0.421	1.000	0.000	0.000
Over	0.056	0.230	1.000	0.000	0.000
NUM	111.782	76.301	326.000	2.000	104.000
Size	21.890	1.054	27.680	17.780	21.658
Age	17.07	5.587	63.000	1.000	16.000
Ownership	0.145	0.103	0.784	0.000	0.132
DEV	0.869	0.211	1.227	0.000	0.959
LEV	0.384	0.199	4.026	0.008	0.452
ROA	0.060	0.153	2.004	-14.290	0.067
IPE	0.048	0.115	1.000	0.000	0.000

Table2 Collinearity judgment

Variable	VIF	1/VIF
Sidth	5.72	0.1747
Depth	5.65	0.1771
II	4.51	0.2216
ROA	4.44	0.2253

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LEV	1.31	0.7624
Ownership	1.14	0.8746
IPE	1.03	0.9678
Mean VIF	3.4	

4.2 Correlation analysis

The correlation coefficients of the main variables in Table 3 are all less than 0.6, indicating a lower likelihood of multicollinearity. From the correlation between variables in Table 3, it can be seen that the correlation coefficients between intergenerational inheritance and family business internationalization are consistent with the hypothesis expectations of this study. Family businesses are positively correlated with the depth and breadth of internationalization (r=0.071, P<0.01), and negatively correlated with the breadth and depth of internationalization (r=-0.098, P<0.01). Industry competition is positively correlated with the depth and breadth of internationalization of family businesses, with correlation coefficients of 0.143 (P<0.01) and 0.036 (P<0.01), respectively. However, further regression testing is needed to determine the interaction effect between the two. In addition, although there is a high correlation between the depth and breadth of internationalization of family businesses, further multiple linear regression analysis can be conducted.

The correlation coefficient matrix of the variables shows that there is no single linear relationship between second-generation involvement and the internationalization of family businesses. The average variance inflation factor (VIF) is 3.4, with a maximum value of 5.72, which is much lower than the critical value of 10, indicating that the problem of multicollinearity is not serious and regression analysis can continue.

Table 3 correlation analysis

	Depth	Width	II	Over	NUM	Size	Age	Ownership	DEV	LEV	ROA	IPE
Depth	1											
Width	0.183***	1										
II	-0.070***	-0.134**	1									
Over	0.101***	0.255***	0.115***	1								
NUM	0.074***	0.189***	-0.048**	-0.042**	1							
Size	0.031***	0.028***	-0.045**	0.015***	-0.059**	1						
Age	0.071***	0.127***	0.280***	0.033	0.193***	0.0911***						
Ownership	0.069***	-0.022**	0.033**	0.027	0.032	-0.055***	-0.147**	1				
DEV	0.021	-0.008	-0.009	-0.021**	0.012***	0.101***	0.186**	0.295*	1			
LEV	-0.012	0.120***	-0.004**	0.004	0.017	-0.027***	-0.004**	0.139**	0.076*	1		
ROA	0.152***	0.026	0.007	0.019**	-0.005	0.013	0.212**	0.049**	0.150***	0.077**	1	
IPE	-0.021	-0.029**	0.001	0.001	0.094***	-0.001	-0.213**	0.040*	-0.017*	0.288**	0.020	1

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4.3 Multiple regression analysis

(1) Regression analysis of intergenerational inheritance and internationalization of family businesses

To verify the impact of intergenerational inheritance on the internationalization of family businesses, based on the above analysis, multiple linear regression was used to analyze the relevant sample data. Table 4 shows the test results of intergenerational inheritance and internationalization depth and breadth in Chinese families. Through univariate tests on the first two columns, it was found that the coefficients of intergenerational inheritance (II) are both positive, indicating that intergenerational inheritance is beneficial for promoting internationalization activities; After supplementing the control variables for the last two columns of data, it was found that intergenerational inheritance has a significant positive impact on the depth and breadth of internationalization of family businesses. It can be seen that intergenerational inheritance participation in family businesses effectively enhances the degree of internationalization of family businesses. Therefore, hypothesis H1 is validated. This indicates that the implementation of intergenerational inheritance in family businesses has a positive impact on the emotional wealth of family society. Second generations can focus on the long-term development of family businesses and increase their participation in internationalization.

Table 4 The Return Results of Intergenerational Inheritance and Internationalization of Family Enterprises

	(1)	(2)	(3)	(4)
	Depth	Width	Depth	Width
II	0.084** (0.15)	0.013** (2.01)	0.124*** (2.85)	0.018** (2.33)
LEV			-0.357*** （-3.28）	-0.074*** （-3.79）
ROA			-0.088 （-0.76）	0.010 （0.38）
Size			0.160*** （7.96）	0.027*** （7.42）
Age			-0.054*** （-14.86）	-0.008*** （-11.80）
DEV			0.609*** （6.52）	0.117*** （6.99）
Ownership			-0.920*** （-5.10）	-0.135*** （-4.18）
IPE			-0.072 （-0.45）	-0.010 （-0.37）
Constant	-3.675*** （-8.11）	-0.652*** （-10.48）	-6.551*** （-10.53）	-1.144*** （-11.74）
Year	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes
Observations	14573	14573	14573	14573
Pseudo R^2	0.157	0.180	0.178	0.197

(2)Regression analysis of internationalization between second-generation and family businesses with overseas backgrounds

Table 5 shows the analysis of the impact of second-generation family businesses with overseas backgrounds on corporate internationalization in implementing intergenerational inheritance. It can be seen that in the univariate test, the

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intergenerational inheritance coefficients with overseas background (Over) in the first two columns of the displayed samples are both positive; The third and fourth columns report that under the influence of control variables, the coefficient of Over is still greater than 0 and has passed the significance tests of 1% and 5%, respectively; In the subsample tests of intergenerational inheritance shown in columns (5) and (6), the coefficients for the implementation of family inheritance and internationalization of family businesses by second-generation individuals with overseas backgrounds are 0.214 and 0.023, respectively, which are significant at the 5% significance level. Therefore, it is assumed that H2 is validated. This indicates that second-generation companies with overseas backgrounds are more helpful in implementing internationalization strategies compared to those without overseas backgrounds, as they have better international and overall perspectives.

Table 5 The regression results of the involvement of second-generation overseas backgrounds and the internationalization of family businesses

	Full Sample Test				Sample based detection with involvement of the second generation	
	(1)	(2)	(3)	(4)	(5)	(6)
	Depth	Width	Depth	Width	Depth	Width
Over	0.209*** (2.70)	0.027** (1.97)	0.251** (3.18)	0.031** (2.23)	0.214** (2.41)	0.023** (2.24)
LEV			-0.367*** （-3.38）	-0.075*** （-3.86）	-0.796*** （-3.21）	-0.022** （-2.52）
ROA			-0.084 （-0.73）	0.010 （0.41）	-0.458 （-0.95）	0.064 （0.79）
Size			0.163*** （8.13）	0.027*** （7.57）	0.146*** （3.38）	0.003 （1.47）
Age			-0.054*** （-14.81）	-0.007*** （-11.73）	-0.066*** （-8.63）	-0.007*** （-5.78）
DEV			0.601*** （6.43）	0.115*** （6.92）	0.159 （0.86）	0.039 （1.22）
Ownership			-0.933*** （-5.18）	-0.137*** （-4.24）	-0.681* （-1.79）	-0.086 （-1.30）
IPE			-0.077 （-0.48）	-0.011 （-0.39）	0.103 （0.32）	0.010 （0.17）

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Constant	-3.668***	-0.651***	-6.078***	-1.151***	-5.227***	-0.583***
	（-8.10）	（-10.47）	（-9.43）	（-11.83）	（-3.82）	（-2.72）
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Observations	14573	14573	14573	14573	3452	3452
Pseudo R^2	0.157	0.180	0.174	0.197	0.167	0.189

(3)The moderating effect of industry competitiveness on intergenerational inheritance and internationalization of family businesses

In order to verify the moderating effect of industry competitiveness on intergenerational inheritance and family business internationalization, intergenerational inheritance and industry competitiveness were first regressed separately on the internationalization of family businesses (internationalization depth and breadth), and then an interaction term composed of industry competitiveness and intergenerational inheritance was added to the regression. The average VIF values of models (1) and (2) were both less than 10, which passed the test, There is no serious multicollinearity problem between variables. According to Table 6, there is a significant positive correlation between intergenerational inheritance and the depth of corporate internationalization（ β= 0.083 (p<0.01), significantly negatively correlated with internationalization breadth（ β=- 0.325, p<0.05); After adding the interaction term composed of intergenerational inheritance and industry competition, there is a significant positive correlation between the interaction term and the depth of enterprise internationalization（ β= 0.001 (p<0.01), when the industry competition is high, family businesses consider the domestic survival pressure and increase export intensity based on the original intergenerational inheritance to formulate corresponding internationalization strategies, thereby deepening the depth of internationalization. That is, the industry competition enhances the positive impact of intergenerational inheritance on the depth of internationalization of family businesses; Meanwhile, according to Model (2), there is a significant negative correlation between the interaction term and the breadth of internationalization（ β=- When the industry competition is high (0.007, p<0.05), family businesses expand overseas and establish overseas subsidiaries in different regions to cope with fierce domestic competition, thereby expanding their internationalization breadth. This pressure brought by the competitive environment forces family businesses to seek a broader scope of internationalization, weakening the negative impact of family involvement on internationalization breadth. Therefore, it is assumed that H3 is tested.

Table 6 Regression results of the regulatory effect of industry competitiveness

	（1） Depth	（2） Width
II	0.083*** （3.87）	-0.325** （-2.24）
Num	0.000 （0.67）	0.000 （-0.07）
II×Num	0.001*** （2.60）	-0.007** （-2.30）
Size	-0.003 （-1.55）	-0.013 （-0.73）

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Age	0.000 （0.60）	-0.005 （-1.02）
Ownership	0.006*** （3.35）	-0.027* （-1.98）
DEV	0.003 （0.30）	-0.006 （-0.09）
LEV	-0.240*** （-4.30）	2.974*** （4.90）
ROA	-0.136** （-2.61）	0.030 （0.05）
IPE	0.017** （2.57）	-0.021 （-0.45）
Constant	-0.196*** （-3.48）	-5.212*** （-7.59）
Industry	YES	YES
Year	YES	YES
N	6371	6371
R^2	0.143	0.957
Hausman test	268.76***	25.71**

4.5 Endogeneity test results

This article examines the endogeneity of intergenerational inheritance through a two-stage regression method. When selecting instrumental variables, this article mainly considers two aspects: 1. For intergenerational inheritance (II), referring to the research of Xu, N., Yuan, Q., Jiang, X.,&Chan, K. C. (2015), the instrumental variable is the chairman's tenure in the family business as the evaluation criterion. If the chairman's tenure in the company exceeds 10 years, it is recorded as 1, otherwise it is 0. In addition, considering that the second generation may have a certain degree of correlation with education due to their overseas background, this study uses the total number of schools in the local area of the enterprise as an instrumental variable. Finally, the duration of a generation's tenure (Time) and the total number of local schools (Schools) were used as instrumental variables to test endogeneity issues. Building Model 4 and Model 5:

$$II= \alpha_0 +\beta_1 Time+ \gamma\ Controls+\sum Year+\sum Industry+ \varepsilon \quad (4)$$

$$Over= \alpha_0+ \beta_1\ School+ \gamma\ Controls+\sum Year+\sum Industry+ \varepsilon \quad (5)$$

The test results are shown in Table 7. The regression analysis in the first stage shows a positive correlation between the duration of the first generation's tenure (Time) and intergenerational inheritance, and there is also a positive correlation between the total number of schools in the location of the family business and the overseas participation (Over) of the second generation. The regression in the second stage shows that intergenerational inheritance (II) is positively correlated with the internationalization preference (Inter) of family businesses and the degree of internationalization (Rinter) of family businesses at significant levels of 1% and 5%, respectively, while family business successors with overseas backgrounds (Over) are also positively correlated.

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4.6 Robustness testing

School		0.001** (2.08)				
II			6.269** (2.68)	1.173** (2.52)		
Over					16.836** (2.07)	4.546** (2.04)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.952*** (2.71)	-0.354** (-1.89)	5.697** (2.41)	0.990** (2.12)	5.267* (1.82)	1.388** (1.75)
Observations	14573	4573	14573	14573	14573	14573
Pseudo R^2	0.157	0.180	0.174	0.197	0.167	0.189

(1)Replace the dependent variable

According to the existing statistical accounting system, this article mainly uses the proportion of overseas revenue to total revenue to measure the depth of internationalization in the empirical analysis section, and uses the number of countries where overseas subsidiaries are registered to measure the breadth of internationalization. In order to further reflect the true characteristics of Chinese enterprises' outward foreign direct investment, in the robustness test section, this article excludes overseas Hong Kong, Macao, and Taiwan regions from the scope of internationalization, The degree of internationalization of family businesses was measured by removing overseas revenue from Hong Kong, Macao, and Taiwan, as well as the registered locations of overseas subsidiaries. The results are shown in Table 8. According to the results of models (1) - (8), the moderating effect of model (8) on the moderating variable industry competition on family involvement and internationalization breadth did not pass the test. It may be due to the small number of overseas subsidiaries in measuring the internationalization breadth of family businesses, mainly distributed in the Hong Kong, Macao, and Taiwan regions, But the direction is consistent with the hypothesis, and overall, the regression results have not changed significantly, and the hypothesis still holds.

Table8 Robustness analysis

	（1）	（2）	（3）	（4）	（5）	（6）	（7）	（8）
	Depth	Width	Depth	Width	Depth	Width	Depth	Width
G_2			0.053**	-0.011*	0.050*	-0.012	0.053**	-0.010
			（2.66）	（-0.07）	（2.52）	（-0.09）	（2.68）	（-0.07）
Num							0.000	0.000
							（-0.13）	（-0.2）

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G_2×Num							0.001***	-0.002
							（3.2）	（-0.99）
Over	0.025***	0.225***	0.026***	0.224***	0.026***	0.225***	0.026***	0.224***
	（7.63）	（6.44）	（7.86）	（6.53）	（7.91）	（6.55）	（7.85）	（6.53）
Size	-0.002	-0.017	-0.003	-0.019	-0.002	-0.017	-0.003	-0.019
	（-1.24）	（-1.18）	（-1.44）	（-1.34）	（-1.3）	（-1.18）	（-1.41）	（-1.36）
Age	-0.001	-0.027***	-0.001	-0.027***	-0.001	-0.027***	-0.001	-0.027***
	（-1.61）	（-4.39）	（-1.48）	（-4.31）	（-1.57）	（-4.37）	（-1.52）	（-4.32）
Ownership	0.006***	-0.011	0.006***	-0.013	0.006***	-0.011	0.006***	-0.013
	（3.88）	（-0.82）	（3.64）	（-0.94）	（3.74）	（-0.83）	（3.57）	（-0.93）
DEV	0.002	0.096	0.001	0.095	0.002	0.096	0.002	0.093
	（0.19）	（1.54）	（0.17）	（1.55）	（0.18）	（1.54）	（0.24）	（1.52）
LEV	-0.245***	0.632	-0.245***	0.580	-0.239***	0.631	-0.235***	0.553
	（-4.75）	（1.29）	（-4.77）	（1.19）	（-4.66）	（1.29）	（-4.58）	（1.13）
ROA	-0.076	-0.930	-0.082	-0.933	-0.081	-0.928	-0.085	-0.927
	（-1.58）	（-1.73）	（-1.71）	（-1.74）	（-1.7）	（-1.73）	（-1.76）	（-1.73）
IPE	0.027***	-0.001	0.021***	-0.007	0.022***	0.000	0.021***	-0.006
	（4.75）	（-0.03）	（3.46）	（-0.17）	（3.58）	（0）	（3.43）	（-0.16）
Constant	-0.184***	-0.861	-0.193***	-0.840	-0.195***	-0.859	-0.188***	-0.863 （
	（-4.17）	（-1.72）	（-4.30）	（-1.69）	（-4.35）	（-1.72）	（-3.69）	-1.72）
Industry	YES	YES	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES	YES	YES
N	6371	6371	6371	6371	6371	6371	6371	6371
R^2	0.124	0.065	0.124	0.064	0.125	0.065	0.126	0.064
Hausman test	192.65***	86.76***	120.49***	92.87***	188.61***	82.17***	138.88***	77.88***

(2)Replace explanatory variables

Su Qi and Li Xinchun (2004) pointed out that using continuous variables to measure the degree of familialization has certain advantages, and Gill, S.,&Panda, S. (2015) also pointed out that family involvement is often measured by the participation of family members in management. Therefore, it is crucial to pay attention to the management team of family businesses. Based on this, this study replaced the explanatory variables in the robustness test section and conducted corresponding regression. The results showed (Table 9) that the relevant hypothesis conclusions are still robust.

Table 9 Robustness test: regression results of replacing explanatory variables

	（9）	（10）	（11）	（12）	（13）	（14）
	Depth	Width	Depth	Width	Depth	Width
G_2			0.031***	0.197**		
			（3.47）	（2.61）		
Num					0.000	0.000
					（0.67）	（-0.07）
G_2×Num					0.001**	-0.007*
					（2.6）	（-2.31）

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Over	0.033***	0.716***	0.033***	0.718***	0.033	0.716***
	（9.31）	（17.7）	（9.38）	（17.69）	（9.3）	（17.75）
Size	-0.003	-0.013	-0.003	-0.010	-0.003	-0.013
	（-1.57）	（-0.71）	（-1.38）	（-0.58）	（-1.55）	（-0.74）
Age	0.000	-0.005	0.000	-0.005	0.000	-0.005
	（0.62）	（-1.04）	（0.5）	（-1.13）	（0.6）	（-1.01）
Ownership	0.006***	-0.028	0.006***	-0.026	0.006***	-0.027
	（3.42）	（-2.08）	（3.57）	（-1.95）	（3.37）	（-1.99）
DEV	0.002	0.002	0.002	0.003	0.003	-0.004
	（0.24）	（0.03）	（0.27）	（0.04）	（0.29）	（-0.05）
LEV	-0.249***	3.070***	-0.241***	3.123***	-0.240***	2.975***
	（-4.48）	（4.98）	（-4.33）	（5.05）	（-4.30）	（4.90）
ROA	-0.134**	-0.004	-0.133*	0.001	-0.136**	0.021
	（-2.57）	（-0.01）	（-2.56）	（0.00）	（-2.59）	（0.03）
IPE	0.017**	-0.023	0.018**	-0.016	0.017**	-0.021
	（2.59）	（-0.5）	（2.76）	（-0.35）	（2.57）	（-0.46）
Constant	-0.231***	-5.147***	-0.234***	-5.166***	-0.196***	-5.210***
	（-4.62）	（-8.25）	（-4.68）	（-8.24）	（-3.48）	（-7.58）
Industry	YES	YES	YES	YES	YES	YES
Year	YES	YES	YES	YES	YES	YES
N	6371	6371	6371	6371	6371	6371
R^2	0.142	0.207	0.144	0.207	0.143	0.208
Hausman test	151.06***	178.69***	213.34***	195.26***	269.59***	26.08***

V. Conclusion

Firstly, intergenerational inheritance has a positive impact on the implementation of family business internationalization strategies. On the one hand, when the second-generation entrepreneurial heirs take over the family business, as the "managers" of family interests, they are willing to invest in long-term internationalization strategies to ensure the sustainable development of the family business and consolidate their personal authority. With the continuous development and growth of family businesses, well-educated descendants who take over family businesses provide international knowledge and a global perspective, which to some extent enhances the internationalization ability of family businesses, enhances their ability to identify international markets, enhances their ability to resist risks, and reduces the cost of conducting business internationally. On the other hand, second-generation heirs typically possess the ability to communicate across cultures, familiarizing themselves with the commercial customs and cultural differences of different countries, and mastering cross-cultural communication skills. When conducting international business in a family business, one can better understand and adapt to the local business environment, establish good relationships with partners from different countries, and promote trust building and channel opening in the international market. After the involvement of the second generation, the inheritor's broad vision, cross-cultural ability, technological application ability, and commitment to the long-term development of the enterprise can help the family business succeed in the international market.

Secondly, second-generation heirs with overseas backgrounds are more inclined towards internationalization of family businesses. This is because second-generation heirs with overseas backgrounds usually receive education or residence experience overseas, and they have a better understanding of foreign markets and business environments, which gives them unique advantages and insights when dealing with cross-border business. In helping family businesses move towards internationalization, they are more capable of using their language skills, cultural understanding, and international communication skills to better

communicate and negotiate with overseas partners, promoting the internationalization process of the enterprise. Second generation heirs with overseas backgrounds may also be more eager for challenges and achievements due to their family background and overseas experience. They may hope to expand their family business into the international market, achieve greater business goals, and expand their corporate influence. Their pursuit of internationalization may not only be driven by economic interests, but also for the long-term development and sustained growth of family businesses.

Finally, industry competitiveness has a positive moderating effect on the relationship between second-generation involvement and the internationalization of family businesses. On the one hand, many family businesses in China are relatively small in scale, and there are many small and medium-sized board family businesses. When facing severe domestic competition pressure, it is necessary for them to seek larger markets overseas. When industry competition is fierce, family businesses will increase their consideration of industry competition crisis in internationalization decisions. Regardless of the level of family involvement, they will be more inclined to increase the proportion of overseas markets in their export strategy. Secondly, the intensification of industry competition has also driven the professional role of second-generation heirs of family businesses in internationalization. Faced with fierce market competition, second-generation heirs often need to possess more comprehensive knowledge and skills, especially understanding and experience of the international market. They may actively seek relevant learning and training to enhance their professional knowledge in international strategy formulation, market development, cross-cultural management, and other areas. The increase in industry competition has stimulated their motivation to improve and expand their own capabilities, thereby better promoting the internationalization process of family businesses.

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