



Research on the Impact of Compatible Innovation on the High-quality Development of Time-honored Enterprises

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Abstract

Based on the sample data of 289 time-honored enterprises, this paper explores how compatible innovation affects the high-quality development of time-honored enterprises by SEM, bootstrap, and hierarchical regression analysis. The research shows that: First, compatible innovation promotes the high-quality development of time-honored enterprises. Second, brand value and brand inheritance partially intermediate the impact of compatible innovation on the high-quality development of time-honored enterprises. Third, government orientation positively regulates the impact of compatible innovation on the high-quality development of time-honored enterprises. This study reveals the influence mechanism of compatible innovation on the high-quality development of time-honored enterprises and provides a theoretical reference for time-honored enterprises to achieve high-quality development.

Keywords: *Compatible Innovation; Time-honored Enterprise; High-quality Development; Brand value; Brand inheritance; Government orientation*

1. Introduction

Time-honored enterprises are representatives of national enterprises and contain profound economic and cultural values. However, due to weak innovation awareness and lagging innovation ability, time-honored enterprises have developed bottlenecks such as slow product updates and rigid brand culture. They are facing a series of challenges from society, market, and consumers. It is of great practical significance to deeply study the high-quality development of time-honored enterprises.

It is generally believed that innovation is an important driving force for enterprise development, which can bring heterogeneous resources such as advanced technology, but innovation is uncertain. Some scholars believe that innovation can significantly improve enterprise performance, while others find that the impact of innovation on the high-quality development of enterprises is dynamic. Different research methods lead to the diversification of research conclusions, and whether innovation can promote the development of time-honored enterprises is also controversial. Some scholars believe that time-honored brands should adhere

to the original flavor, ensure brand purity, and highlight brand image (Schallehn et al., 2014)^[1]. Other scholars show that the innovation of time-honored enterprises can promote brand activation and realize brand growth (Vukasovic, 2012)^[2]. Compatible innovation is an innovation paradigm based on the unique thought of the Chinese nation (Chen H & Chen J, 2019)^[3], which has a significant impact on improving the development quality of time-honored enterprises.

This paper introduces brand value and brand inheritance as mediating variables, and government orientation as the moderating variable to explore and analyze the internal mechanism of compatible innovation to the high-quality development of time-honored enterprises. It enriches the research contents of enterprise innovation theory, brand theory, and political strategy theory.

2. Literature review and research hypothesis

2.1. Compatible innovation and high-quality development of time-honored enterprises

Enterprises are the strategic subject of national development and the micro-foundation for promoting

high-quality development. Therefore, the transformation of economic development mode must focus on the high-quality development of enterprises, and innovation is the fundamental path to achieve high-quality development of enterprises. Compatible innovation not only reflects the update of knowledge and technology but also represents the inclusiveness and craftsmanship of the Chinese nation (Chen H & Chen J, 2019)^[3]. Time-honored enterprises have the characteristics of originality, authenticity, and historical continuity (Urde et al., 2007)^[4]. They not only have the operating elements of ordinary enterprises but also contain the core cultural elements. How to inherit these elements is the core of time-honored enterprises to achieve high-quality development. But they also face the problem of how to adapt to changing markets through transformational innovation (Burghausen & Balmer, 2014)^[5]. Time-honored enterprises find a balance between the consistency of traditional culture and the adaptability of innovative development through compatible innovation to achieve high-quality development of enterprises. Therefore, we propose the following hypothesis:

H1: Compatible innovation promotes the high-quality development of time-honored enterprises.

2.2. Mediating effect of brand value

Brand value is the income premium brought by the company's heterogeneous resources (Kirk et al., 2013)^[6]. Innovation is an important factor to enhance brand value and promote the sustainable development of enterprises. Firstly, enterprises with strong innovation ability convey information of core competitive advantages to stakeholders (Liu et al., 2019)^[7], which can help enterprises establish a good corporate image. Secondly, innovation ability and innovation experience have the characteristics of heterogeneous resources (Grant, 1991)^[8], which is the driving force to enhance brand value. Finally, enterprises can continuously improve existing products or services through various innovative activities to meet the psychological needs of consumers (Rubera & Kirca, 2012)^[9], increase customer loyalty, and enhance the corporate brand value. Compatible innovation can help enterprises build a new resource environment and generate new competitive advantages. Enterprises make full use of internal and external resources to carry out compatible innovations, enhance brand value, and achieve high-quality development. Therefore, we propose the following hypothesis:

H2: Compatible innovation has a positive effect on brand value.

H3: Brand value promotes the high-quality development of time-honored enterprises.

H4: Brand value plays an intermediary role in the impact of compatible innovation on the high-quality development of time-honored enterprises.

2.3. Mediating effect of brand inheritance

Brand inheritance can show the uniqueness and differences between different enterprise brands, promote brand adherence and continuation. Based on the theory of brand duality, Beverland et al. (2015)^[10] expounds the contradictory and unified relationship between inheritance and innovation, which is both opposite and interdependent. Time-honored enterprises revitalize old brands with innovation and change, and awaken old brands with nostalgia and invariance (He et al., 2007)^[11]. Under the compatible innovation model, time-honored enterprises have extensively absorbed and embraced new knowledge from various fields, while retaining their craftsmanship spirit and core brand culture. By conveying the original brand knowledge to consumers, time-honored enterprises maintain the consistency of the brand, making their products both traditional style and characteristics of the times (Xu et al., 2018)^[12]. To sum up, compatible innovation can promote the inheritance of time-honored brands, strengthen the emotional connection between consumers and brands, and then promote the high-quality development of time-honored brands. Therefore, we propose the following hypothesis:

H5: Compatible innovation has a positive effect on brand inheritance.

H6: Brand inheritance promotes the high-quality development of time-honored enterprises.

H7: Brand inheritance plays an intermediary role in the impact of compatible innovation on the high-quality development of time-honored enterprises.

2.4. Moderating effect of government orientation

In the period of China's economic transformation, the institutional environment and policy environment are particularly important for the innovation and development of enterprises. Firstly, the government holds the necessary resources for enterprise development and determines the way of resource allocation. Government orientation can offer tax incentives, financial subsidies, and other policy support, which provides material guarantees for enterprises to carry out innovative activities (Li & Wang, 2015)^[13]. Secondly, the imperfect property rights system makes the innovation and development of enterprises face high risk and high uncertainty. Enterprises make up for this deficiency by establishing government orientation and creating an external environment that is conducive to their development (Ma et al., 2015)^[14]. Finally, enterprises with a high degree of government orientation tend to focus more on building political relationships. It is conducive to improving political legitimacy, enabling them to grasp the development trend of government policies timely and accurately. Enterprises take

advantage of the opportunities and support provided by the government to reduce innovation risk (Ge et al., 2018)^[15]. Therefore, we propose the following hypothesis:

H8: Government orientation positively regulates the relationship between compatible innovation and the high-quality development of time-honored enterprises.

3. Research design

3.1. Variable measurement

The research object of this paper is the "Chinese Time-honored Brand" recognized by the Ministry of Commerce. All items in the questionnaire are based on the Likert summated rating scale, where 1 means "strongly disagree" and 7 means "strongly agree". Drawing on existing scales or related concept scales, and combining the above theoretical hypothesis, a variable measurement questionnaire is constructed. Adjust its applicability according to the characteristics of time-honored enterprises and expert opinions. The high-quality development of time-honored enterprises drawing on the research of Xiao (2020)^[16], uses four factors including scale development, quality benefit, innovation ability, and sustainable development to measure, with a total of 12 items. Based on the research of Chen H and Chen J (2019)^[3], the compatible innovation scale is proposed, with a total of 9 items. According to the research of Wang C and Wang Y (2014)^[17], brand value is measured from three aspects: market value, consumer value, and cultural value, with a total of 9 items. Brand inheritance is measured from two aspects of culture and skill with reference to the research of rose et al. (2016)^[18], with a total of 6 items. Government orientation is measured with reference to the research of Li and Wang (2015)^[13], with a total of 5 items. This paper selects brand establishment time, the number of employees, and asset size as control variables.

3.2. Pre-investigation test

In order to test the rationality of the questionnaire items, we conducted a small-scale pre-investigation before the formal investigation. In the pre-investigation, we distributed 100 questionnaires and selected 87 valid questionnaires.

Pre-investigation reliability test. The Cronbach's α coefficient is used to test the reliability. The result shows that: high-quality development 0.943, compatible innovation 0.940, brand value 0.943, brand inheritance 0.897, and government orientation 0.884. The Cronbach's α are all greater than 0.7, and the CITC of the measurement items are all greater than 0.5. Therefore, the pre-questionnaire passes the reliability test.

Pre-investigation validity test. Exploratory factor analysis is used to test the validity. The result shows that

the KMO of variables: high-quality development 0.921, compatible innovation 0.884, brand value 0.935, brand inheritance 0.871, and government orientation 0.804. The KMO are all greater than 0.7, and the Bartlett test is significant at $P < 0.001$. It indicates that the measurement scale for each variable passes the validity test.

3.3. Data collection

We distribute questionnaires through channels such as alumni relations, MBA classrooms, and researcher relationships. A total of 350 questionnaires are distributed and 312 questionnaires are received. After excluding invalid questionnaires with missing data and unreasonable answers, we obtained 289 valid questionnaires, with an effective rate of 82.6%. 58.83% of the surveyed enterprise brands have been established for more than 100 years, reflecting the long history of time-honored enterprises. The top three industries in which enterprises belong are food manufacturing, catering, and pharmaceutical manufacturing, accounting for 44.64%, 14.88%, and 12.11%, respectively. The number of employees is less than 200, 200-1000, 1001-3000, and more than 3000, accounting for 16.61%, 41.87%, 30.80%, and 10.72%, respectively. The total assets are less than 10 million, 10 million to 100 million, 100 million to 1 billion, and more than 1 billion, accounting for 16.61%, 37.02%, 34.60%, and 11.76%, respectively. The gender distribution of respondents is relatively even, with 165 males (57.09%) and 124 females (42.91%). More than 80% of respondents have worked for three years or more, which can be inferred to have a better understanding of enterprise development.

4. Empirical analysis

4.1. Common method biases test

This paper uses Harman's single-factor test for common method biases due to the same rater. The result shows that the percentage of variance explained by the first common factor is 34.286%, which is lower than the critical value of 40%, indicating that there are no serious common method biases in the research data.

4.2. Reliability and validity test

The Cronbach's α and CR of variables are greater than 0.7, indicating that the internal consistency among questionnaire items is good and the reliability level is sufficient. The factor loadings of variables are all greater than 0.6, and the AVEs are all greater than 0.5, indicating that the validity of the questionnaire is relatively high. In addition, this paper measures the correlation coefficient, the mean and standard deviation of variables. The results are shown in Table 1. There are significant correlations between main variables, which meet the requirement for further research.

Table 1. Mean, standard deviation, CR, AVE, and correlation analysis.

Variable	TIME	EMP	SIZE	CIN	BV	BI	GOV	DEV
Brand time (TIME)	1							
Employees (EMP)	0.207**	1						
Asset size (SIZE)	0.330**	0.638**	1					
Compatible innovation (CIN)	0.036	-0.015	-0.069	1				
Brand value (BV)	-0.004	0.154**	0.027	0.413**	1			
Brand inheritance (BI)	-0.067	-0.029	-0.080	0.438**	0.339**	1		
Government orientation (GOV)	0.025	0.086	0.060	0.126*	0.194**	0.351**	1	
High-quality development (DEV)	-0.044	0.096	0.003	0.436**	0.446**	0.383**	0.168**	1
Mean	1.910	2.360	2.420	4.684	4.334	4.317	4.757	4.346
S.D.	0.953	0.882	0.902	1.138	1.128	1.088	0.958	1.012
CR				0.940	0.942	0.933	0.889	0.944
AVE				0.639	0.644	0.701	0.617	0.586

* p<0.05, ** p<0.01, *** p<0.001.

4.3. Structural equation model test

The structural equation model is used to verify the impact of compatible innovation on the high-quality development of time-honored enterprises. The model-fitting results are shown in Table 2. Most of the indicators meet the adaptation standard, so the fitting effect is ideal. By analyzing the path coefficients and parameter estimates, we get the following conclusions: Compatible innovation positively affects the high-quality

development of time-honored enterprises, and the standardized path coefficient is 0.243, which is significant at P<0.001. H1 passes the test. Compatible innovation positively affects brand value (P < 0.001) and brand inheritance (P < 0.001), and the corresponding standardized path coefficients are 0.454 and 0.462. H2 and H5 pass the test. Brand value (P<0.001) and brand inheritance (P<0.01) positively affect the high-quality development of time-honored enterprises, and the corresponding standardized path coefficients are 0.286 and 0.204. H3 and H6 pass the test.

Table 2. Structural equation model fitting results.

Path	S.C.	S.E.	C.R.	P	Hypothesis					
CIN→DEV	0.243	0.051	3.647	***	H1					
CIN→BV	0.454	0.061	7.437	***	H2					
BV→DEV	0.286	0.049	4.490	***	H3					
CIN→BI	0.462	0.056	7.625	***	H5					
BI→DEV	0.204	0.052	3.256	**	H6					
Index	χ^2/df	RMSEA	NFI	IFI	TLI	CFI	GFI	AGFI	PGFI	PNFI
Value	1.179	0.025	0.916	0.986	0.985	0.986	0.886	0.871	0.784	0.856

* p<0.05, ** p<0.01, *** p<0.001.

4.4. Mediating effect test

The bootstrap method is used to verify the mediating effect of brand value and brand inheritance, that is, whether the indirect impact of compatible innovation on the high-quality development of enterprises is

significantly different from zero. The results of the mediation effect test show that the confidence intervals of Bias-Corrected 95% CI and Percentile 95% CI do not contain 0, indicating that both direct and indirect effects exist. Therefore, both brand value and brand heritage play an incomplete intermediary role. H4 and H7 partially pass the test.

Table 3. Bootstrap hypothesis test.

Path	Point Estimate	Product of Coefficients		Bias-Corrected 95% CI		Percentile 95% CI		
		S.E.	Z	Lower	Upper	Lower	Upper	
CIN→BV →DEV	DE	0.243	0.074	3.284	0.103	0.403	0.095	0.395
	IE	0.111	0.046	2.413	0.042	0.227	0.038	0.219
	TE	0.354	0.066	5.364	0.227	0.483	0.231	0.486

CIN→BI →DEV	DE	0.264	0.076	3.474	0.115	0.417	0.117	0.418
	IE	0.089	0.042	2.119	0.023	0.184	0.021	0.179
	TE	0.353	0.066	5.348	0.227	0.483	0.231	0.486

DE, IE, and TE represent direct effect, indirect effect, and total effect, respectively; Bootstrap 2000.

4.5. Moderating effect test

The hierarchical regression model is used to test the regulatory effect of government orientation. Taking DEV as the dependent variable, CIN as the independent variable, GOV as the regulating variable, CIN*GOV as the cross-multiplication term, TIME, EMP, and SIZE as the control variables. The result shows that the regression coefficient of CIN*GOV is 0.349, which is significant at $P < 0.001$. The R^2 is 0.317, and the F value is significant, indicating that the government orientation positively regulates the impact of compatible innovation on the high-quality development of time-honored enterprises. H8 passes the test.

Table 4. Hierarchical regression analysis.

	M1	M2	M3	M4
TIME	-0.049	-0.079	-0.078	-0.019
EMP	0.157*	0.135	0.127	0.144*
SIZE	-0.081	-0.027	-0.029	-0.044
CIN		0.439***	0.425***	0.305***
GOV			0.107*	0.201***
CIN*GOV				0.349***
R^2	0.017	0.207	0.219	0.317
Adj- R^2	0.007	0.196	0.205	0.302
F	1.636	18.576***	15.828***	21.784***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

5. Conclusion

This paper reveals the influence mechanism of compatible innovation on the high-quality development of time-honored enterprises. Compatible innovation has a direct positive impact on the high-quality development of time-honored enterprises. While inheriting brand cultural elements, time-honored enterprises innovate by absorbing advanced knowledge and technology to adapt to changes in the external market and achieve high-quality development. Compatible innovation indirectly promotes the high-quality development of time-honored enterprises through the partial intermediary role. Compatible innovation enhances brand value and promotes brand inheritance, thus producing indirect effects. Government orientation positively regulates the impact of compatible innovation on the high-quality development of time-honored enterprises. Time-honored enterprises that maintain a high degree of government orientation can obtain scarce resources and reduce innovation risks and costs.

The limitations of this paper are as follows: First, it does not explore the relationship between mediating variables, and the research framework can be further refined in the future. Second, it obtains research data through questionnaires, which can be combined with more objective data in future research.

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