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A STUDY ON THE RELATIONSHIP BETWEEN CHINESE PRIVATE ENTREPRENEURIAL SOCIAL CAPITAL AND ENTERPRISE PROFITABILITY BASED ON THE MODERATING EFFECT OF TECHNOLOGICAL ENVIRONMENT TURBULENCE

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Abstract: China's private enterprises have made significant contributions to economic and social development, primarily manifested in promoting urban employment, driving technological innovation, generating GDP, and paying taxes. However, the development of China's private enterprises are facing numerous challenges and obstacles, chiefly characterised by insufficient market demand, difficulties in accessing affordable financing, and impediments to transformation and upgrading. Throughout the development process of private enterprises, entrepreneurs have played a pivotal role, and the social capital they build and possess constitutes a crucial factor in advancing enterprise profitability. This study employs empirical data derived from a questionnaire survey of private entrepreneurs in Jiangsu Province, China, to examine the relationship between entrepreneurial social capital and enterprise profitability. Empirical findings reveal that entrepreneurial social capital exerts a positive impact on enterprise profitability. Further study indicates that market, institutional, and technological social capital all have positive impact on enterprise probability. Concurrently, the study identifies that technological environment turbulence moderates the relationship between entrepreneurial social capital and enterprise profitability. Specifically, technological environment turbulence significantly moderates the impact of market and technological social capital on enterprise profitability, whereas its moderating effect on the influence of institutional social capital is not significant. Upon these findings, the paper proposes corresponding policy recommendations from the perspectives of both private entrepreneurs and policymakers.

Keywords: Entrepreneurial social capital, Enterprise Profitability, Technological Environment Turbulence

1.INTRODUCTION

In China, private enterprises are playing an increasingly significant role, primarily manifested in advancing urban employment, driving technological innovation, boosting GDP, and increasing government public revenue (Jintai Information, 2025). However, Chinese private enterprises simultaneously confront numerous challenges and difficulties in their development, notably manifested in insufficient market demand, difficulties in accessing financing and high financing costs, and obstacles to transformation and upgrading (Fan & Kong, 2024). Under the combined impact of these challenges and adverse factors, Chinese private enterprises

have faced severe developmental constraints in recent years (Han, 2025).

To address these developmental challenges, scholars have conducted research highlighting the pivotal role of individual entrepreneurial factors in overcoming difficulties and enhancing enterprise profitability (Zeng et al., 2022; Wu et al., 2023). The social capital possessed by private entrepreneurs also constitutes a vital factor in achieving enterprise profitability. According to Burt (1992), social capital serves as the ultimate arbiter in competition for various production factors between enterprises. Adler and Kwon (2002) contend that an entrepreneur's social capital represents the most crucial strategic resource for an enterprise and the most enduring source of competitive advantage, exerting significant influence and impact on achieving and enhancing enterprise profitability. Within research primarily situated in the Chinese context, scholars including Li (1995), Shi (1998), Bian & Qiu (2000) have discovered that the greater the social capital accumulated by entrepreneurs, the higher the per capita output value of their enterprises and the superior their overall performance. Through empirical research on small and medium-sized enterprises, Gong & Lin (2007) observed that private entrepreneurs themselves recognise the importance of their social capital, consciously increasing it during the enterprise development process. Recent studies by Hou (2023), Zhang et al. (2023), and Wang (2020) have reached similar conclusions.

At present, the development of China's private enterprises faces a technological environment turbulence. Environmental turbulence is generally employed to describe the instability and unpredictability arising from irregular movements within an organisation's external environment. This impacts management's perception of current and future conditions, influencing operational decisions and consequently affecting enterprise profitability (Jurado et al., 2015). Currently, amid multidimensional shocks including trade frictions, the Russia-Ukraine conflict, and supply chain restructuring, the corporate operating environment is fraught with uncertainty and turbulence. Among numerous environmental turbulence factors, technological and market environment volatility stand out as particularly prominent challenges for enterprises (Yu & Liang, 2019). Technological environment turbulence manifests as the complexity, instability, and unpredictable trajectory of technological developments (Sharfman & Dean, 1991). Technological environmental turbulence is now widely employed in explaining and researching corporate innovation and profitability enhancement (Liu & Wu, 2021; Xu et al., 2020). However, its moderating role in the process whereby entrepreneurial social capital influences enterprise profitability remains unclear.

In summary, China's private enterprises play a crucial role in economic development, yet their current growth still faces certain challenges and difficulties. Among the various factors influencing the development of Chinese private enterprises, numerous scholars acknowledge that the social capital of private entrepreneurs plays a crucial driving role. However, existing research has yet to reach a unified understanding regarding the moderating effect of technological environmental turbulence in the process by which entrepreneurial social capital influences enterprise profitability. Accordingly, this study will conduct a questionnaire survey among Chinese private entrepreneurs to explore the pathways through which entrepreneurial social capital impacts enterprise profitability, as well as the moderating effect of technological environmental turbulence within these pathways. This will address the aforementioned questions and contribute to the field of study.

2 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 The Relationship Between entrepreneurial social capital and Enterprise Profitability

From a theoretical perspective, an entrepreneur's social capital exerts a direct influence on enterprise profitability. According to Burt (1992), social capital constitutes the decisive factor in competition for various production factors between enterprises. Enterprises that accumulate greater social capital typically demonstrate stronger market competitiveness. Research by Adler & Kwon (2002) supports this perspective. Golden & Dollinger (1993), through a larger-scale study, found that small enterprises rarely functioned effectively without relational networks, and those utilising such networks less frequently tended to experience less successful strategic adaptation.

In research primarily situated in China, Li (1995) empirically demonstrated that the positions and occupations of an entrepreneur's friends within the "system" significantly favoured enterprise scale, even surpassing the influence of kinship ties. Entrepreneurs' strong relationships with managerial and technical staff, rather than workers, fostered business development. Entrepreneurs possessing greater social capital were better positioned to secure resources, particularly loans and technical personnel

from state-owned enterprises. After analysing data from the National Survey of Private Entrepreneurs conducted by the United Front Work Department of the CPC Central Committee and the All-China Federation of Industry and Commerce, Shi (1998) found that entrepreneurial social capital generally influences enterprise scale. Bian & Qiu (2000) discovered through survey research that the greater an entrepreneur's social capital, the higher their enterprise's per capita gross output value. Gong & Lin (2007) observed that private entrepreneurs' recognition of relationship importance, extensive networks, and frequent relationship-building activities positively impact enterprise profitability. Specific relationship-building practices such as cultivating connections during festivals, hosting business banquets, and reciprocating favours with transactional partners also yield positive impacts on enterprise profitability. Recent research increasingly highlights the critical role of entrepreneurial social capital in enhancing enterprise profitability. Hou (2023) identified that social capital exerts a significant positive influence on technological innovation efficiency, with marketisation playing a notable positive moderating role. Xu et al. (2019) found that entrepreneurial social capital positively influences enterprise profitability. Wang (2020) contends that entrepreneurial social capital positively promotes innovation performance, with moderating effects observed for industry sector, enterprise nature, and enterprise age.

Based on a synthesis of relevant research, it is evident that entrepreneurial social capital influences the formation of enterprise profitability. Accordingly, the following hypothesis is proposed:

H1: There is a relationship between the Entrepreneur Social Capital and the Profitability of the Private Enterprise.

This study draws upon the research methodologies of Na (2006) to categorise entrepreneurial social capital into three types: market social capital, institutional social capital, and technological social capital. Accordingly, hypothesis H1 is built as follows:

H1a: There is a relationship between the Entrepreneurial Market Social Capital and the Profitability of the Private Enterprise.

H1b: There is a relationship between the Entrepreneurial Institutional Social Capital and the Profitability of the Private Enterprise.

H1c: There is a relationship between the Entrepreneurial Technological Social Capital and the Profitability of the Private Enterprise.

2.2 The Moderating Effect of Technological Environment Turbulence on the Impact of Entrepreneurial Social Capital on Enterprise Profitability

Scholars have observed that the influence of entrepreneurial social capital on enterprise profitability is frequently moderated by external environmental factors. Hou (2023) found that the mechanism through which social capital affects technological innovation efficiency is significantly positively moderated by marketisation. Luo & Tang (2009) found that the institutional environment influences the formation of entrepreneurial social capital, which in turn affects enterprise profitability.

Technological environmental factors frequently influence enterprises' adoption and learning of technology and knowledge, exerting substantial impacts on enterprise profitability. Tang et al. (2022) observed that the embedding of digital technologies within enterprises affects labour productivity, exhibiting a U-shaped non-linear effect. Lu & Guo (2023) contend that technological adoption positively drives labour productivity. Generally, high-tech industries and enterprises exert substantial influence on enhancing enterprise profitability. Furthermore, scholars have conducted corresponding research into the potential impact of technological environmental turbulence on enterprise profitability. Bruton et al. (2016) concluded that technological turbulence amplifies the resource-intensive, protracted, and delayed-reward characteristics inherent in technological innovation processes. To counter this uncertainty, enterprises must increase resource allocation and adopt multiple measures to accurately forecast industry technological trends and mitigate associated losses, thereby elevating corporate costs.

Wu et al. (2017) concluded that knowledge secrecy exerts a negative influence on enterprise innovation profitability, with environmental dynamism amplifying this detrimental effect. Conversely, knowledge complexity exerts a positive influence on innovation profitability within technology alliances, with environmental dynamism reinforcing this positive impact. Li & Tao (2018), examining the relationship between business model innovation and enterprise profitability, found that technological environmental turbulence strengthens the positive relationship between human capital and novel business model innovation, thereby enhancing enterprise profitability. Jia et al. (2018) argue that technological turbulence can prompt enterprises to accelerate the pace of shifting development trajectories and adjust R&D investment levels in a timely manner, seizing opportunities to achieve sustainable organisational development. Wang & Liu (2020) empirically demonstrated that technological turbulence positively mediates the relationship between two dimensions of enterprise green innovation (exploratory green innovation and exploitative green innovation) and the enterprise's customer and technological advantages. Liu & Wu (2021) found that environmental turbulence positively mediates the relationship between enterprise's technological management capabilities and breakthrough technological innovation

behaviour. Zhang et al. (2021) empirically demonstrated that environmental turbulence amplifies the positive impact of supply chain dynamic capabilities on the implementation of management innovation.

It can thus be seen that technological environment turbulence may exert a moderating effect on the process whereby private entrepreneurial social capital impacts enterprise profitability. Based on this, the following hypothesis is proposed:

H2: Technological Environment Turbulence moderates the relationship between the Entrepreneurial Social Capital and the Profitability of the Private Enterprise.

As the entrepreneurial social capital variable encompasses market social capital, institutional social capital, and technological social capital, this study further includes the following sub-hypotheses:

H2a: Technological Environment Turbulence moderates the relationship between the Entrepreneurial Market Social Capital and the Profitability of the Private Enterprise.

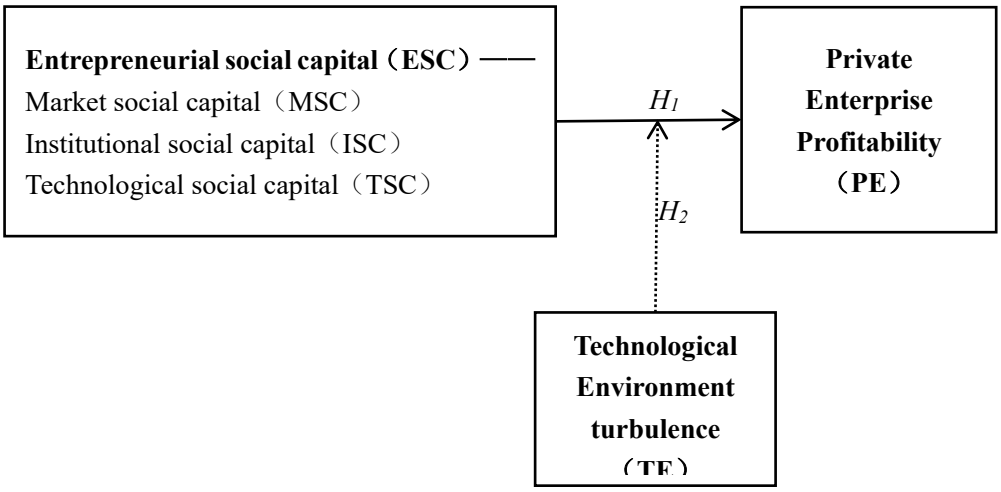
H2b: Technological Environment Turbulence moderates the relationship between the Entrepreneurial Institutional Social Capital and the Profitability of the Private Enterprise.

H2c: Technological Environment Turbulence moderates the relationship between the Entrepreneurial Technological Social Capital and the Profitability of the Private Enterprise.

2.3 Conceptual Framework

From the literature review and hypothesis that was studied and formed, the conceptual framework was developed, as can be seen in Figure 2.1.

Figure 2.1： Conceptual Framework



3 Empirical Analysis and Model Testing

For the current study, the researcher intends to gather data by closed-ended questioning with a highly predetermined nature to perform numerical data analysis. Following Creswell's (2013) classification, the research method applied to the current study can broadly be described as a quantitative method. The research method is more towards quantitative research designs which were adopted through a questionnaire and interviews. By incorporating quantitative elements, a more deeper understanding of the research problem is provided.

3.1 Variables and Measures

In designing the questionnaire for this study, the measurement of each variable primarily employed scales previously used in existing literature, with corresponding modifications and refinements made to suit the practical circumstances and requirements of the research. Through investigation and selection, we identified five variables, comprising three independent variables, one dependent variable, and one control variable, along with their corresponding 28 items for the study. The variables and items included in each variable studied in this paper are presented in Table 3.1.

Table 3.1: Research variables and items

Variables	Items	Researcher
Market Social	MSC1. I maintain extensive contacts with senior executives at client	Fang (2020)

Capital（MSC）	and supplier organisations.	Qiu (2014)
	MSC2. I maintain excellent personal relationships with senior executives at both client and supplier organisations.	
	MSC3. I maintain extensive connections with senior executives from partner companies within the industry.	
	MSC4. I maintain excellent personal relationships with senior executives at partner companies within the industry.	
	MSC5. I can glean a great deal of useful information from the aforementioned relationships.	
	MSC6. I can derive considerable useful resources from the aforementioned relationships.	
Institutional Social Capital（ISC）	ISC1. I maintain extensive working relationships with officials at all levels of government and with industry regulators.	
	ISC2. I maintain cordial personal relations with officials at all levels of government and relevant industry authorities.	
	ISC3. I can glean a great deal of useful information from the aforementioned relationships.	
	ISC4. I can derive considerable useful resources from the aforementioned relationships.	
	ISC5. I can leverage the aforementioned connections to resolve the company's difficulties.	
Technological Social Capital（TSC）	TSC1. I have extensive connections with professionals at research institutions.	
	TSC2. I maintain excellent personal relationships with professionals at research institutions.	
	TSC3. I can derive considerable useful resources from the aforementioned relationships.	
	TSC4. I can gain considerable valuable professional expertise from the aforementioned relationships.	
	TSC5. I can leverage the aforementioned connections to resolve the company's difficulties.	
Technological Environment Turbulence（TE）	TE1. The pace of technological change in our industry is rapid.	Huang (2022) Wu (2021) Jaworski & Kohli (1993)
	TE2. The pace at which new products or services are introduced within our company's industry is relatively rapid.	
	TE3. Technological breakthroughs within our industry have enabled numerous novel product concepts to be realised.	
	TE4. Technological breakthroughs within our industry have led to a relatively rapid decline in the cost of product manufacturing.	
	TE5. New technologies have a significant impact on the market landscape in which our company operates.	
	TE6. Technological shifts within the industry present significant challenges to the development of the entire sector in which our company operates.	
Enterprise Profitability（PE）	EP1. Market Share	Degroote & Marx (2013) Carmeli et al（2011）
	EP2. Profit Margin	
	EP3. Return on Investment	
	EP4. Product Sales Revenue	
	EP5. New Product	
	EP6. Customer Satisfaction	

In the questionnaire for this study, each item was measured using a five-point Likert scale, with respondents requested to answer based on their perceived actual circumstances. For each item: 1-Strongly disagree; 2-Disagree; 3-Not sure; 4-Agree; 5-Strongly agree.

3.2 Sample and Data Collection

This study primarily investigates the impact of social capital among Chinese private entrepreneurs on enterprise profitability, alongside the moderating effect of technological environment turbulence within this relationship. The individual design of this research focuses on entrepreneurs within private manufacturing enterprises in Jiangsu Province, China. The research sample was formed through questionnaire surveys. Given the current social environment in China, where satisfactory survey responses remain challenging to obtain via postal or telephone methods, this study employed the snowball sampling technique within non-probability

sampling to collect the corresponding research sample.

The questionnaire survey and sample acquisition process comprised three stages: pre-test, pilot test, and formal research. Through the pre-test and pilot test, we obtained 105 feedback questionnaires. Following reliability testing, we revised and reduced the questionnaire items. Due to failing reliability testing, we removed item TE3 from Table 3.1, retaining the remaining 27 items. During the formal research, 533 questionnaires were collected. Following data cleaning, responses failing to meet survey criteria, duplicate submissions, and those exhibiting clear inconsistencies with common sense were excluded, yielding 506 valid questionnaires. These data will be utilised to construct a structural equation model and conduct further analysis.

3.3 Research Method

In accordance with the recommendations proposed by Anderson and Gerbing (1988), the research methodology adopted in this study comprises the following steps and components. Firstly, exploratory factor analysis (EFA) was conducted on all variables using SPSS 23.0 software. Second, Amos 26.0 software was employed to construct structural equation models and conduct confirmatory factor analysis (CFA) to assess the consistency of various measurement items. Concurrently, model fit indices were used to determine whether the measurement model aligned with the data. Third, Amos 26.0 software was utilised to conduct discriminant validity testing on the constructed model. Fourth, hypotheses were tested by examining the fit of the structural equation model and the significance of path coefficients.

In this study, model fit was primarily assessed using the following indices: CMIN/DF, IFI, TLI, CFI, GFI, and RMSEA. The respective critical values for these indices are: CMIN/DF<3 (Wen, et al., 2004); IFI, TLI, CFI, GFI≥0.9 (Byrne, 1998); RMSEA≤0.08 (Browne & Cudeck, 1993).

3.4 Descriptive Statistics

In this study, descriptive statistics concerning the respondents were obtained through the survey. The descriptive statistics for respondents' responses to the items comprising each variable are presented in Table 3.2.

Table 3.2: Descriptive statistics of respondents' answers to the scales

Variable	Minimum value	Maximum value	Mean value	Standard deviation
Entrepreneurial Market Social Capital	1.170	5.000	3.727	0.925
Entrepreneurial Institutional Social Capital	1.400	5.000	3.697	0.988
Entrepreneurial Technological Social Capital	1.400	5.000	3.706	0.960
Entrepreneurial Social Capital	1.630	4.750	3.711	0.767
Technological Environment Turbulence（TE）	1.000	5.000	3.705	0.933
Enterprise Profitability（PE）	1.000	5.000	3.758	0.964

According to Table 3.2, overall, the mean values of all variables fall between 3.697 and 3.758, indicating relatively close numerical values that reflect the sample's similarity across relevant dimensions. The standard deviations of each variable range from 0.767 to 0.988, suggesting that respondents exhibit certain variations in their individual circumstances.

Among the analysed variables, the mean values for the independent variables "market social capital", "institutional social capital", and "technological social capital" all hover around 3.7 with comparable standard deviations. This suggests respondents perceive relatively balanced levels of entrepreneurial social capital, though individual variations persist. The overall mean value for "Entrepreneurial Social Capital" was 3.711 with a standard deviation of 0.767, representing the variable with the smallest standard deviation. This suggests relatively minor differences in social capital accumulation among entrepreneurs, indicating overall stability. The mean value for "Enterprise Profitability" was 3.758 with a standard deviation of 0.964, indicating that overall enterprise profitability was at a moderate level, with considerable variation between individuals. Among the external environment variables, the mean value for "Technological Environment Turbulence" was 3.705 with a standard deviation of 0.933, also at a moderate level, reflecting that the impact of external environmental factors faced by enterprises was relatively balanced.

3.5 Measurement Model and Variable Test

3.5.1 Reliability Test

Prior to hypothesis testing, we employed SPSS 23.0 software to conduct Exploratory Factor Analysis and Reliability Analysis on

the measurement model. Analysis revealed a KMO value of 0.916 for the questionnaire data, exceeding the critical threshold of 0.6. The Bartlett's sphericity test yielded a p-value below 0.05. According to Ma (2004), the variables in this questionnaire are suitable for factor analysis.We conducted exploratory factor analysis on all variables. Here, 27 items represented five factors, collectively explaining 66.665% of the total variance. Generally, a variance explained exceeding 60% is considered indicative of sound data analysis outcomes. Concurrently, the Cronbach's α coefficients for all variables exceeded the recommended acceptable threshold of 0.70 in relevant research. Specifically, "market social capital" yielded 0.884, "institutional social capital" yielded 0.882, "technological social capital" yielded 0.868, "technological environmental turbulence" yielded 0.875, and "enterprise profitability" yielded 0.905, all demonstrating excellent internal consistency reliability. According to Nunnally (1978), Cronbach's α coefficients exceeding 0.70 indicate high reliability.

3.5.2 Validity Test

This study conducted Confirmatory Factor Analysis (CFA) on each measured variable. Using Amos 28.0 software, models were constructed for entrepreneurial market social capital (MSC), entrepreneurial institutional social capital (ISC), entrepreneurial technological social capital (TSC), technological environmental turbulence (TE), and enterprise profitability (EP). The fit indices for each measurement model were assessed, revealing that all variables except enterprise profitability (EP) met the required fit criteria. For the EP variable, this study adjusted the initial model by deleting items and implementing appropriate MI corrections before re-testing model fit. Following the deletion of items EP2 and EP3 and applying appropriate MI corrections, it can be concluded that this variable now meets the fit requirements.

After that, we used Amos 26.0 software to analyse the variables in the model of entrepreneurial social capital influencing the enterprise profitability, resulting in a model for measuring all variables. It can be seen that the absolute value of the standardized loading coefficients of the corresponding items for each variable is greater than 0.5. Moreover, each item and its corresponding variable exhibited a P-value that was statistically significant at the 5% level. According to the criteria derived from the study of Fornell and Larcker (1981), the questionnaire of the present study has a high degree of validity and there is a good measurement relationship between the variables and the corresponding question items.。

We proceeded to examine the convergent and discriminant validity of the aforementioned model. Using Amos 26.0 software, the average variance extracted (AVE) and critical ratio (CR) values for each variable in the model are calculated. The AVE values for all six factors exceed 0.5, while the CR values all surpass 0.7. According to the criteria established by Fornell and Larcker (1981), this model demonstrates sound convergent validity.

When examining the discriminant validity of each variable in the model, we calculated the Pearson correlation coefficients between variables and the square root of the AVE for each variable. It reveals that the square root of the average variance extracted (AVE) for the variables "market social capital", "institutional social capital", "technological social capital", "technological environmental turbulence", and "enterprise profitability" are 0.749, 0.775, 0.754, 0.765, and 0.803 respectively. Moreover, the square root of the AVE for each variable exceeds the corresponding Pearson correlation coefficient. According to the criteria established by Fornell and Larcker (1981), this indicates that the variables within the model possess good discriminant validity.

4.RESULTS AND DISCUSSION

This study employs Amos 26.0 software to test the conceptual framework under investigation and the proposed hypotheses, thereby establishing first-order and second-order models of the impact of entrepreneurial social capital on enterprise profitability, alongside findings regarding moderating effects.

4.1 First-Order Model of the Impact of Entrepreneurial Social Capital on Enterprise Profitability

Based on the Conceptual Framework illustrated in Figure 2.1, this paper employs questionnaire survey data to test a first-order model of how entrepreneurial social capital influences enterprise profitability, yielding the results presented in Table 4.1.

Table 4.1 Path Coefficient Tests of the Impact of Entrepreneurial Social Capital on Enterprise Profitability

			Estimate	S.E.	C.R.	P
Enterprise Profitability	<---	Entrepreneurial market social capital	0.207	0.043	3.820	***

Enterprise Profitability	<---	Entrepreneurial institutional social capital	0.276	0.042	3.855	***
Enterprise Profitability	<---	Entrepreneurial technological social capital	0.231	0.043	4.117	***

The goodness-of-fit test results for the aforementioned model are presented in Table 4.2. As evident from the table, all metrics meet the criteria, with the CMIN/DF ratio below 3. The remaining indicators also demonstrate adequate or ideal fit conditions, thereby confirming that the model passes the goodness-of-fit test.

Table 4.2: Model Fit Test for the First-Order Model

Indicator	Value	Justification	Result of Fit Test
CMIN/DF	1.676	<3	appropriate
GFI	0.950	>0.9	ideal
AGFI	0.935	>0.9	ideal
RSMEA	0.037	<0.08	appropriate
NFI	0.955	>0.9	ideal
TLI	0.978	>0.9	ideal
IFI	0.981	>0.9	ideal
CFI	0.981	>0.9	ideal
PNFI	0.819	>0.5	appropriate
PCFI	0.842	>0.5	appropriate

Following the validation of the structural equation model through indicator fit analysis, we proceeded to examine the model paths. This study employed AMOS 26.0 software to conduct regression analyses on the data. Based on these results, the hypotheses within the model were tested as follows:

(1) Entrepreneurial market social capital exerts a significant positive influence on enterprise profitability, with a standardised path coefficient of 0.207, p=0.000, p<0.05. Hypothesis H1a is thus confirmed.

(2) Entrepreneurial institutional social capital exerts a significant positive influence on enterprise profitability, with a standardised path coefficient of 0.276, p=0.000, p<0.05. Hypothesis H1b is thus confirmed.

(3) Entrepreneurial technological social capital exerts a significant positive influence on enterprise profitability, with a standardised path coefficient of 0.231, p=0.000, p<0.05. Hypothesis H1c is thus confirmed.

4.2 Second-Order Model of the Impact of Entrepreneurial Social Capital on Enterprise Profitability

Based on the Conceptual Framework illustrated in Figure 2.1, this paper employs questionnaire survey data to test the second-order model of how entrepreneurial social capital influences enterprise profitability, yielding the results presented in Table 4.3.

Table 4.3 Path Coefficient Tests of the impact of entrepreneurial social capital on Enterprise Profitability

			Estimate	S.E.	C.R.	P
Enterprise Profitability	<---	Entrepreneurial social capital	0.673	0.087	8.811	***

The goodness-of-fit test results for the aforementioned model are presented in Table 4.4. As evident from the table, all metrics meet the criteria: the CMIN/DF ratio is less than 3, and the remaining indicators also achieve satisfactory or ideal fit conditions. Consequently, the model's goodness-of-fit may be deemed to have passed the test.

Table 4.4: Model Fit Test for the Second-Order Model

Indicator	Value	Justification	Result of Fit Test
CMIN/DF	1.656	<3	appropriate
GFI	0.950	>0.9	ideal
AGFI	0.936	>0.9	ideal
RSMEA	0.036	<0.08	appropriate
NFI	0.955	>0.9	ideal
TLI	0.979	>0.9	ideal
IFI	0.982	>0.9	ideal
CFI	0.982	>0.9	ideal
PNFI	0.829	>0.5	appropriate
PCFI	0.852	>0.5	appropriate

Following the validation of the structural equation model through indicator fit analysis, we proceeded to examine the model paths. This study employed AMOS 26.0 software to conduct regression analyses on the data. Based on these results, the hypotheses

within the model were tested as follows:

(1) Entrepreneurial social capital exerts a significant positive influence on enterprise profitability, with a standardised path coefficient of 0.673, p=0.000, p<0.05. Therefore, Hypothesis H1 is confirmed.

4.3 Moderating Effects

4.3.1 The Moderating Effect of Technological Environment Turbulence on the Impact of Entrepreneurial Social Capital on Enterprise Profitability

This study analyzed the moderating role played by the enterprise technological environment turbulence (TE) in the process of entrepreneurial social capital impacting enterprise profitability using Amos 28.0 software, resulting in three models as shown in Table 4.5. Among them, Model 1 represents the case where only one independent variable, entrepreneurial social capital, is included. Model 2 represents the case where two independent variables, entrepreneurial social capital and technological environment turbulence, are included. Model 3 represents the case where three independent variables, entrepreneurial social capital, technological environment turbulence, and the interaction term between the two, are included.

Table 4.5: A model of the moderating effect of TE

	Model 1	Model 2	Model 3
Constant	3.758**	3.758**	3.742**
ESC	0.629**	0.685**	0.693**
TE		0.303**	0.327**
ESC*TE			-0.086*
R^2	0.426	0.521	0.525
Adjusted R^2	0.424	0.519	0.522
F Value	373.451**	273.425**	184.743**
Note: EP as the dependent variable			
* p<0.05，** p<0.01			

As can be seen in Table 4.5, the independent variable entrepreneurial social capital shows significance (t=19.325, p=0.000<0.05), implying that entrepreneurial social capital will have a significant impact relationship on enterprise profitability. In model 3, the interaction term between entrepreneurial social capital and technological environment turbulence shows significance (t=-2.014, p=0.045<0.05), which means that in the process of entrepreneurial social capital's influence on enterprise profitability, the moderating effect produced by the moderating variable technological environment turbulence at different levels has a significant difference, and therefore it can be determined that hypothesis H2 is confirmed.

4.3.2 The Moderating Effect of Technological Environment Turbulence on the Impact of Entrepreneurial Market Social Capital on Enterprise Profitability

This study analyzed the moderating role played by the enterprise technological environment turbulence (TE) in the process of entrepreneurial market social capital affecting enterprise profitability using Amos 28.0 software, and came up with three models as shown in Table 4.6. Among them, Model 1 represents the case where only one independent variable, entrepreneurial market social capital, is included. Model 2 represents the case where two independent variables, entrepreneurial market social capital and technological environment turbulence, are included. Model 3 represents the case where three independent variables, entrepreneurial market social capital, technological environment turbulence, and an interaction term between the two, are included.

Table 4.6: A model of the moderating effect of TE

	Model 1	Model 2	Model 3
Constant	3.758**	3.758**	3.725**
MSC	0.500**	0.547**	0.593**
TE		0.271**	0.327**
MSC*TE			-0.188**
R^2	0.269	0.346	0.375
Adjusted R^2	0.268	0.343	0.371
F Value	185.662**	132.944**	100.207**

Note: EP as the dependent variable

* p<0.05，** p<0.01

As can be seen in Table 4.6, the independent variable entrepreneurial market social capital shows significance (t=13.626, p=0.000<0.05), implying that entrepreneurial market social capital will have a significant impact relationship on enterprise profitability. In model 3, the interaction term between entrepreneurial market social capital and technological environment turbulence is significant (t=-4.803, p=0.000<0.05), which means that in the process of entrepreneurial market social capital affecting enterprise profitability, the moderating effect of the variable technological environment turbulence is significant at different levels, so it can be determined that the hypothesis H2a is confirmed.

4.3.3 The Moderating Effect of Technological Environment Turbulence on the Impact of Entrepreneurial Institutional Social Capital on Enterprise Profitability

This study analyzed the moderating role of enterprise technological environment turbulence (TE) in the process of entrepreneurial institutional social capital affecting enterprise profitability using Amos 28.0 software, resulting in three models as shown in Table 4.7. Among them, Model 1 represents the case where only one independent variable, entrepreneurial institutional social capital, is included; Model 2 represents the case where two independent variables, entrepreneurial institutional social capital and technological environment turbulence, are included; and Model 3 represents the case where three independent variables, entrepreneurial institutional social capital, technological environment turbulence, and an interaction term between the two, are included.

Table 4.7: A model of the moderating effect of the TE

	Model 1	Model 2	Model 3
Constant	3.758**	3.758**	3.750**
ISC	0.515**	0.543**	0.556**
TE		0.239**	0.254**
ISC*TE			-0.062
R^2	0.285	0.346	0.348
Adjusted R^2	0.284	0.343	0.345
F Value	201.295**	133.112**	89.502**
Note: EP as the dependent variable			
* p<0.05，** p<0.01			

From the above table, it can be seen that the independent variable entrepreneurial institutional social capital shows significance (t=14.188, p=0.000<0.05), which implies that institutional social capital will have a significant impact relationship on enterprise profitability. In Model 3, the interaction term between entrepreneurial institutional social capital and technological environment turbulence does not present significance (t=-1.356, p=0.176>0.05), which indicates that the magnitude of the effect of entrepreneurial institutional social capital on enterprise profitability remains consistent when the moderator variable technological environment turbulence is at different levels. Based on this judgment, hypothesis H2b is not confirmed.

4.3.4 The Moderating Effect of Technological Environment Turbulence on the Impact of Entrepreneurial Technological Social Capital on Enterprise Profitability

This study analyzed the moderating role played by the enterprise technological environment turbulence (TE) in the process of entrepreneurial technological social capital affecting enterprise profitability using Amos 28.0 software, resulting in three models as shown in Table 4.8. Among them, Model 1 represents the case where only one independent variable, entrepreneurial technological social capital, is included; Model 2 represents the case where two independent variables, entrepreneurial technological social capital and technological environment turbulence, are included; and Model 3 represents the case where three independent variables, entrepreneurial technological social capital, technological environment turbulence, and an interaction term between the two, are included.

Table 4.8: A model of the moderating effect of TE

	Model 1	Model 2	Model 3
Constant	3.758**	3.758**	3.733**
TSC	0.499**	0.539**	0.573**
TE		0.259**	0.287**
TSC*TE			-0.159**
R^2	0.268	0.338	0.361

Adjusted R^2	0.266	0.336	0.357
F Value	184.410**	128.565**	94.636**
Note: EP as the dependent variable			
* p<0.05，** p<0.01			

As can be seen from Table 4.8, the independent variable entrepreneurial technological social capital shows significance (t=13.580, p=0.000<0.05), implying that entrepreneurial technological social capital will have a significant impact relationship on enterprise profitability. In model 3, the interaction term between entrepreneurial technological social capital and technological environment turbulence is significant (t=-4.249, p=0.000<0.05), which means that in the process of entrepreneurial technological social capital affecting enterprise profitability, the moderating effect of the variable technological environment turbulence is significant at different levels, so it can be determined that the hypothesis H2c is confirmed.

4.4 Result of Hypothesis Testing

In this study, the corresponding structural equation model was constructed based on the constructed conceptual model, and the hypotheses proposed in the conceptual model were tested by collecting data through questionnaires. The synthesis of the above analysis resulted in the testing of the hypotheses as shown in Table 4.9.

Table 4.9: Summary of hypothesis

No.	Hypothesis	Conclusion
H1	There is a relationship between the Entrepreneur Social Capital and the Profitability of the Private Enterprise.	Valid
H1a	There is a relationship between the Entrepreneurial Market Social Capital and the Profitability of the Private Enterprise.	Valid
H1b	There is a relationship between the Entrepreneurial Institutional Social Capital and the Profitability of the Private Enterprise.	Valid
H1c	There is a relationship between the Entrepreneurial Technological Social Capital and the Profitability of the Private Enterprise.	Valid
H2	Technological Environment Turbulence moderates the relationship between the Entrepreneurial Social Capital and the Profitability of the Private Enterprise.	Valid
H2a	Technological Environment Turbulence moderates the relationship between the Entrepreneurial Market Social Capital and the Profitability of the Private Enterprise.	Valid
H2b	Technological Environment Turbulence moderates the relationship between the Entrepreneurial Institutional Social Capital and the Profitability of the Private Enterprise.	Not Valid
H2c	Technological Environment Turbulence moderates the relationship between the Entrepreneurial Technological Social Capital and the Profitability of the Private Enterprise.	Valid

5.CONCLUSIONS AND IMPLICATIONS

5.1 Conclusions

Based on the aforementioned analysis, it is evident that seven of the eight hypotheses established in this paper passed the significance test and were thus confirmed, while one hypothesis failed the significance test and was consequently rejected. Accordingly, we draw the following conclusions.

Conclusion I: Social capital possessed by private entrepreneurs exerts a significant positive influence on enterprise profitability. Furthermore, upon categorising this social capital, it was found that market, institutional, and technological social capital all exerted significant positive impact on enterprise profitability.

Conclusion II: Within the process whereby entrepreneurial social capital influences enterprise profitability, the technological environment turbulence exerts a significant negative moderating effect. Concurrently, technological environment turbulence exerts a similar moderating influence on the processes through which entrepreneurial market social capital and technological social capital impact enterprise profitability. However, its moderating effect on the process through which institutional social capital influences enterprise profitability is not significant.

5.2 Implications

5.2.1 Implications to Entrepreneurs

The research conclusions herein offer the following recommendations for China's private entrepreneurs. Entrepreneurs should continually enrich diverse forms of social capital, striving to construct a tripartite social capital network system integrating "market-

institutional-technological" dimensions. This framework should then be leveraged to enhance enterprise profitability and drive enterprise development.

Chinese private entrepreneurs should actively construct social capital networks, fostering mutually supportive development patterns with diverse partners. Regarding market social capital, they must transcend the limitations of single-business collaborations by establishing strategic partnerships with key clients and suppliers. Cooperation should be deepened through joint product development and shared channel resources, while leveraging industry summits and industrial alliances to expand new cooperation circles, forming a tiered network of "core partners + potential partners". Regarding institutional social capital, maintaining regular communication with government departments is essential. Actively participate in policy research and advisory processes to accurately grasp policy directions concerning industrial support and technological innovation. Simultaneously, proactively assume social responsibilities. Enhance corporate social image and strengthen influence in government interactions through actions such as charitable donations and employment assistance. Regarding technological social capital, companies should establish collaborative innovation networks integrating industry, academia, research, and application. This involves co-founding laboratories or R&D centres with universities and research institutes, facilitating technology transfer through joint projects and mutual talent appointments. Participation in technological innovation alliances enables sharing of non-core technological resources with peer enterprises to collectively tackle common industry challenges.

5.2.2 Implications to Policymakers and Regulators

The research conclusions herein offer the following recommendations for policymakers and regulators: a stable technological environment should be established as a foundation to provide corresponding safeguards for enhancing the profitability of private enterprises.

As demonstrated by the preceding analysis, rapid technological transformation and turbulence may present development opportunities for private enterprises while simultaneously increasing operational risks due to their inherent uncertainty, thereby negatively impacting profitability enhancement. Against the backdrop of deep integration between the digital and physical economies, accelerating technological iteration poses particular challenges for private enterprises, especially small and medium-sized entities, which often struggle to adapt swiftly to market shifts driven by technological change due to insufficient technical reserves and limited financial resources, potentially facing the risk of obsolescence. As the principal entity for policy formulation and market regulation, the government should adopt a macro-level approach. Through systematic measures, it should foster a relatively stable technological development environment for private enterprises, mitigating the adverse effects of technological turbulence and laying a solid foundation for enhancing enterprise profitability (Cheng & Luo, 2025).

Firstly, the government must enhance its analysis and guidance of technological trends by establishing a technology early-warning and guidance system. Leveraging national high-level think tanks, key laboratories, and industry-leading enterprises, it should create cross-departmental, cross-sectoral mechanisms for technology monitoring and analysis. Integrating resources from universities, research institutions, and industry associations, it should form specialised technology assessment teams. Through forward-looking technological guidance, this stabilises corporate expectations regarding technological investment, directs enterprises to rationally plan their technological R&D and application timelines, and fosters sustained growth in enterprise profitability. Secondly, in promoting technological innovation and application, governments should focus on balancing technological advancement with corporate adaptability by establishing a tiered technology dissemination mechanism. For disruptive technologies with significant implementation challenges and profound industry implications, such as industrial internet platforms and smart factory solutions, special pilot projects may mitigate rollout risks. Following successful trials, gradual sector-by-sector and region-by-region deployment should be implemented to prevent market disruption from large-scale adoption. Finally, governments must enhance support for private enterprises technological innovation through multi-dimensional policy packages that stimulate investment enthusiasm. In taxation, governments should grant additional tax deductions for R&D expenditures incurred by private enterprises on technological development projects. Regarding financial support, dedicated innovation funds for private enterprises should be established to provide low-interest loans or financing guarantees for technological R&D and upgrades. Concerning talent, government-industry collaboration platforms should be developed to encourage universities to channel technical expertise to private enterprises. These measures will enhance enterprises' capacity to navigate technological transformation, enabling them to better

seize opportunities amid technological turbulence and achieve profitability improvements.

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