


Research on the influence of social relations on social enterprise performance: The mediating role of business model innovation

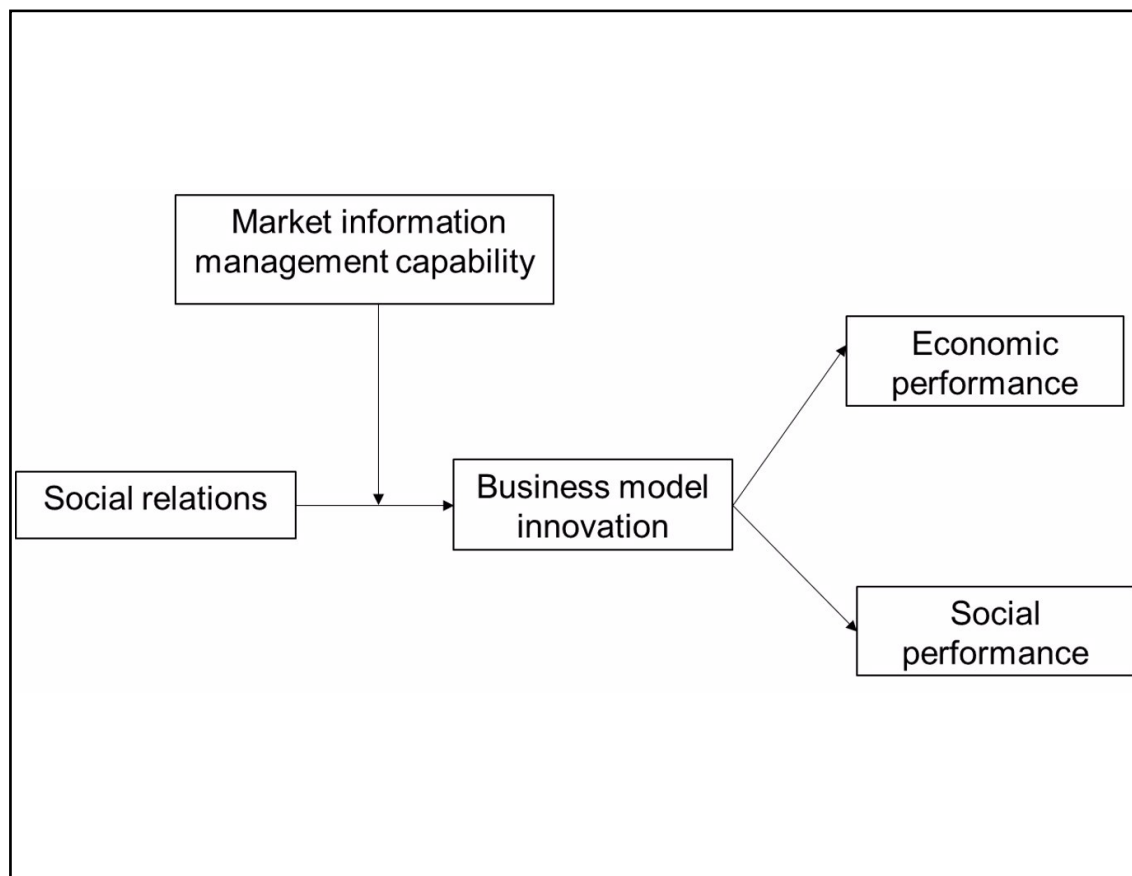
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Graphical abstract



Theoretical framework of social relations on social enterprise performance.

Public summary

- Social relations have a significant positive impact on economic performance and social performance.
- Business model innovation plays a mediating role between social relations and economic performance. Business model innovation plays a mediating role between social relations and social performance.
- Market information management capability positively moderates the relationship between social relations and business model innovation.

Research on the influence of social relations on social enterprise performance: The mediating role of business model innovation

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Abstract: With the development of the social economy, social problems are becoming increasingly prominent. Solving social problems only by the government and public welfare organizations is difficult. Social enterprises offer opportunities for sustainable solutions to social problems; however, social enterprises generally face the problem of poor performance. Although previous studies provide some clues on the impact of social relations on social enterprise performance, whether social relations impact performance remains unknown, and the mechanism remains unclear. Based on resource-based theory, our study proposes the role of business model innovation as the intervening mechanism. Market information management capability enhances the positive effect of social relations on business model innovation. The findings from a survey of 198 Chinese social enterprises show that social relations have a significant positive impact on economic performance and social performance and that business model innovation plays a mediating role between social relations and performance. Market information management capability plays a positive moderating role between social relations and business model innovation. The research results enrich the research on the influencing factors of social enterprise performance, reveal the influencing mechanism and boundary conditions of social relations on social enterprise performance, and propose effective practical measures for improving social enterprise performance.

Keywords: social enterprise performance; market information management capability; business model innovation; social relations

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1 Introduction

Social enterprises play an important role in promoting economic development and solving social problems. They integrate resources through business model innovation and put profits back into operation, providing sustainable development opportunities for solving social problems and achieving economic goals. CANYOU^① established good relations with Taobao, providing free training for disabled people for Taobao as cloud customer service staff, which solved the employment problem of disabled people. In cooperation with Taobao, CANYOU accumulated e-commerce operation knowledge and resources. Furthermore, CANYOU designed a new business model of full process e-commerce agency service: providing agent sales and cloud customer service for handicrafts of the disabled, thus achieving economic and social goals. However, according to the survey of the *China Social Enterprise and Social Investment Industry Research Report (2019)*^[1], a high proportion of social enterprises lack resources, and they face the problem of poor performance and difficulty in achieving social goals.

The performance of social enterprises has gradually become an important research topic. Social enterprises face

resource dilemmas, which affect their development^[2]. Existing studies have paid attention to internal resources and explored social entrepreneurial characteristics^[3-5] (entrepreneurial experience, entrepreneurial enthusiasm, entrepreneurship, etc.) and social enterprise organizational characteristics^[6-11] (value orientation, marketing capabilities, etc.) on the performance of social enterprises. However, resources not only include internal resources but also external resources bring more possibilities and impact the development of enterprises^[12]. Social relations are the collection of value-adding relations with stakeholders such as business partners, government, volunteers, and donors^[13], which provide necessary external resources for social enterprises^[14]. Scholars have called for the exploration of the impact of social relations on social enterprise performance^[15]. Furthermore, social relations are unproductive resources that work by influencing enterprise production and operations^[16]. In this paper, we explored the impact and mechanism of social relations on social enterprise performance from a resource perspective.

According to resource-based theory, resources influence strategic activities, which in turn influence performance^[17]. Strategic activities are dynamic to support the evolving needs

① <http://www.canyoucn.com/talent/index.html>

of the organization^[18]. Social relations expand communication boundaries and facilitate information exchange, facilitating the creation of new transactions^[19]. In addition, social relations bring new ideas and resources to promote new products and services and establish new operations, which contribute to business model innovation^[19–21]. Business model innovation is a series of strategic activities in which companies integrate and optimally allocate resources to adapt to changes and create greater value, including redesigning organizational structure, operation mode, business process, transaction mode, value creation and transmission^[22]. For social enterprises, business model innovation enables social enterprises to adapt to environmental changes, provides irreplaceable products and services and brings good economic and social performance^[23]. In summary, social relations bring information and resources to promote business model innovation, and then social enterprises provide competitive products and services, thus achieving economic and social performance. Therefore, we propose that business model innovation plays a mediating role in the relationship between social relations and social enterprise performance. Taking social relations as the starting point, it is helpful to explore the relationship between social relations and the performance of social enterprises by influencing business model innovation to reveal the mechanism.

Furthermore, resource-based theory posits that the transformation of resources into business model innovation is influenced by internal capabilities^[24]. In the process of connecting with the outside world, social relations provide plenty of resources and information, such as market information, government policy, customer demand, and stakeholders' needs. Social enterprises need to identify and make the most effective information in the process of resource utilization^[25]. Market information management capability is the ability to obtain, analyze and take effective action on information about the market, stakeholders' needs and satisfaction^[26]. Managing market information enables social enterprises to identify opportunities that cannot be found by fragmented information^[13], mobilize resources to grasp these opportunities and then innovate products and services to fulfill the new needs. Therefore, this paper aims to examine the moderating role of market information management capability between social relations and business model innovation.

In summary, based on resource-based theory, our study explores the impact and mechanism of social relations on social enterprise performance, as well as the mediating role of business model innovation and the moderating role of market information management capability. The theoretical contributions of this study mainly include the following three aspects. First, we build a model to explore the relationship between social relations and social enterprise performance, enriching the research on antecedents of social enterprise performance. Second, based on resource-based theory, we propose and test the mechanism of social relations influencing social enterprise performance. Social relations positively influence social enterprise performance through the intermediary of business model innovation, thus providing new ideas for the transformation of resources to performance. Third, we suggest and exami-

ne the moderating role of market information management capability between social relations and business model innovation, thus providing evidence for the boundary conditions of the effect of social relations on business model innovation.

2 Literature review

2.1 Resource-based theory

The core view of resource-based theory is that the resources a firm has contribute to the formation of its competitive advantage^[27], and the main task of management is to maximize value^[28]. Barney^[29] indicated that when resources are valuable, scarce, inimitable, and irreplaceable, a firm will have a lasting competitive advantage. With deeper research, scholars have found that having resources is insufficient for firms to gain competitive advantages. Resources need to be managed and utilized to translate into performance^[30].

Previous studies have explored the mechanism of social relations and performance from the perspective of resources, focusing on mediating mechanisms of capabilities such as channel responsiveness capability^[31], dynamic capability^[32], and operational capability^[16]. Resource-based theory also proposes that resources affect performance by influencing the strategic activities of the firm^[17]. Huang et al.^[33] explored the intermediary role of resource bricolage, a strategic activity of utilizing and recombining existing enterprise resources to solve new problems with limited resources, between social relations and performance.

In addition, the process of resource utilization is influenced by contextual factors, such as the market environment^[11] and regulation^[34]. Environmental changes, technological updates, and the behavior of competitors affect the efficiency of a company's resource utilization^[11]. Regulation constrains the use of resources, as social enterprises cannot obtain support from regulation and policy at a low level of regulation^[34].

2.2 Social enterprise performance

Social enterprises are organizations that aim to solve social problems, utilize resources creatively, and balance profits and social goals^[35]. Social enterprise performance includes economic performance and social performance. Economic performance refers to the financial profitability of social enterprises, market share growth, achieving customer satisfaction and financial profitability, while social performance includes obtaining grants, volunteers, projects, and providing services to community beneficiaries.

Social enterprises face a resource dilemma^[2]. Previous studies on social enterprise performance mainly from the perspective of internal resources focus on the characteristics of the entrepreneur and organizational characteristics. In terms of the characteristics of social entrepreneurs, Thorgren and Omoredede^[3] found through a case study that entrepreneurial enthusiasm is transmitted to social enterprises to take positive actions to achieve good economic performance and social performance. Wang et al.^[4] examined a valid sample of 109 Chinese social enterprises and found that entrepreneurial experience promotes social enterprise performance by rational

allocation of resources through opportunity identification. Cho and Kim^[5] explored 235 Korean social enterprises and determined that entrepreneurship promotes social enterprise performance by facilitating the development of differentiated and innovative products.

In terms of the organizational characteristics of social enterprises, Liu et al.^[6] compared 534 UK and Japanese social enterprises and found that different marketing capabilities play different roles in social enterprises' economic performance and social performance. Liu et al.^[7] empirically tested 534 social enterprises and found that deploying business strategies can deploy resources to improve market effectiveness and achieve social enterprise performance. Liu et al.^[8] determined through a study of 260 social enterprises that competition orientation promotes social enterprises to generate revenue, thus positively influencing social performance, and charity orientation positively influences social performance. Market disruption capability reallocates and deploys resources to provide new products and solutions to social problems, which have an impact on performance^[9]. Wang and Zhou^[10] surveyed data from 183 Chinese social enterprises and determined that business model innovation improves organizational legitimacy and influences the investment and operation practices of social enterprises, thus influencing social enterprise performance. Bhattarai et al.^[9] explored 164 UK social enterprises and found that market orientation promotes social enterprises to achieve good performance. Li and Huang^[11] explored 200 social enterprises, determining that social orientation promotes breaking through technological bottlenecks and promoting performance development.

From the above, existing studies have mainly focused on internal resources for the performance of social enterprises. External resources bring many possibilities and opportunities to social enterprises. Social enterprises are faced with many social relations. Leveraging social relations to access external resources is significant for social enterprise growth compared to controllable and limited internal resources^[2]. Therefore, this study focuses on the impact of social relations on social enterprise performance from external resources perspective. Antecedent variables of social enterprise performance from internal resources perspective are shown in Table 1.

2.3 Social relations

Social relations are the collection of value-adding relations^[36].

For social enterprises, market relations, government relations, and public relations are the main social relations because market partners affect production and sales, the government sets regulations and laws that influence the survival of social enterprises, and public relations provide human resources for social enterprises^[14]. Social enterprises face both economic and social missions, addressing needs that cannot be met by the government or nonprofit sector, and therefore need to span multiple networks of social relations^[36].

Several case studies have explored the benefits of social relations to break through resource constraints and facilitate social enterprises' development^[2,37,38]. Morrison et al.^[37] found that social relations help social enterprises access financial and market resources, carry out social activities, and promote community goals. Iqbal et al.'s study^[38] of social enterprises in Pakistan found that collaborative interactions among the government, universities, industry, and civil society facilitated the development of social enterprises, which were promoted by building effective connections and relations with external parties and increasing organizational resources^[39]. Reficco et al.'s study^[2] of the Mexican organization Unidos determined that the organization relied on family and acquaintance connections to recruit volunteers, reduce cost expenditures, and provide one-on-one services to summer camps for people with disabilities to help them adapt to daily life and achieve their organizational goals.

The aforementioned studies reveal that scholars have focused on the benefits of social relations in social enterprise development from case studies. However, it is not clear whether social relations affect social enterprise performance. Therefore, this paper empirically investigates the role of social relations on social enterprise performance and explores the intermediate mechanism and boundary condition.

2.4 Business model innovation

Business model innovation refers to the strategic activity of conducting new exchanges among various participants, for example, connecting previously unconnected parties, linking transaction participants in new ways, or designing new transaction mechanisms^[22]. Social enterprises are characterized by the simultaneous pursuit of economic and social performance, which is different from the single economic goal pursued by previous enterprises. Business model innovation helps social

Table 1. Antecedent variables of social enterprise performance from internal resources perspective.

Categories	Authors	Independent variable	Mediator variable	Moderator variable
Personal characteristics	Thorgren and Omorede ^[3]	Leader passion		
	Wang et al. ^[4]	Entrepreneurial experience	Opportunity identification	
	Cho and Kim ^[5]	Entrepreneurship	Community networking	
Organizational characteristics	Liu et al. ^[6]	Marketing orientation, entrepreneurial orientation	Market effectiveness, customer satisfaction	
	Liu et al. ^[7]	Marketing capabilities		
	Liu et al. ^[8]	Competitive orientation, charity orientation	Market legalization	
	Bhattarai et al. ^[9]	Market orientation, market disruption capability		
	Wang and Zhou ^[10]	Business model innovation	Legitimacy	New venture development stages
	Li and Huang ^[11]	Social entrepreneurship orientation	Boundary-spanning search	Market environment

enterprises achieve both goals simultaneously^[40]. Social enterprises engage in business model innovation to integrate resources and achieve the coordination of economic and social value creation^[10].

Previous studies have used the case study approach to analyze business model innovation drivers for social enterprises, and only one empirical study has tested the results of business model innovation. Reffico et al.^[2] used a qualitative case study approach to propose that personal triggers, challenging events, and resource integration platforms are the main drivers of business model innovation. Steven and Pattinson^[41] discussed the case of the Hextol Foundation and argued that social enterprises cannot replicate traditional business models. Social relations provide new ideas and resources to promote business model innovation, and economic performance and social performance are balanced in social enterprises through business model innovation^[42]. Siebold^[14] defined the main stakeholders of social enterprises as beneficiaries, donors, partners, and different stakeholders play different roles in business model innovation. There is only one empirical study on the results of social enterprise business model innovation. Wang and Zhou^[10] determined that business model innovation enables social enterprises to focus on social missions, go beyond profit and market value, achieve a virtuous cycle and positively affect economic and social performance.

3 Theoretical model and research hypothesis

3.1 Social relations and social enterprise performance

Social relations have a positive impact on the economic performance of social enterprises. The social relations of social enterprises mainly include business relations, government relations, and public relations, which provide resources and information that are not available in the open market^[4]. Establishing good relations with market partners brings market information resources and sales channel resources. Resources promote social enterprises to reconstruct business processes, and then social enterprises are capable of providing competitive products and services and achieving economic performance. Good relations with the government promote social enterprises to obtain special government funds and bring loan concessions and credit channels^[43], enabling social enterprises to obtain financial resources^[44]. Social enterprises also obtain resources such as policy support and service contracts, contributing to developing new products and achieving good performance. Establishing good relations with volunteers gives full play to the advantages of the human resources of volunteers, reduces labor costs^[46], brings new ideas for operation models^[45], meets the needs of consumers, and promotes the realization of economic goals. These arguments lead us to propose the following hypothesis:

H1a. Social relations have a positive impact on the economic performance of social enterprises.

Social relations have a positive impact on the social performance of social enterprises. Good relations with stakeholders can efficiently and precisely obtain information about beneficiaries' needs, dispatch resources to redesign new transac-

tion models, increase the number of people served and increase the scope of services. Maintaining good relations with the government promotes social enterprises to obtain scarce resources such as policy support and public service contracts and increases the likelihood of social enterprise survival^[46,47]. Good relations with volunteers, beneficiaries, and community managers enable social enterprises to obtain resources, provide quality social services, and obtain community service projects, thereby promoting social performance achievement^[13]. These resources brought by social relations promote social enterprises to improve the existing value delivery methods and operation models to serve more and a wider range of beneficiaries to achieve social goals.

These arguments lead us to propose the following hypothesis:

H1b. Social relations have a positive impact on social enterprises' social performance.

3.2 Social relations and business model innovation

Social relations bring resources that facilitate business model innovation^[42]. Specifically, social relations expand the boundaries of communication and build bridges for information sharing and communication^[19], facilitating new transactions between social enterprises and stakeholders. These boundaries and communication bridges promote information exchange, create opportunities for the cross-disciplinary exchange of ideas, and bring new ideas for business model innovation^[41]. At the same time, social relations bring resources to realize new ideas and achieve business model innovation. For example, capital resources allow social enterprises to engage in business model innovation^[20], human resources promote social enterprises to capture market opportunities and optimize business processes^[21], and policy support resources brought by social relations reduce the risk of business model innovation. In summary, good social relations promote social enterprises to establish new cooperation with market partners, integrate information and resources, integrate upstream and downstream processes, propose new value propositions, and achieve business model innovation^[14].

These arguments lead us to propose the following hypothesis:

H2. Social relations have a positive impact on business model innovation.

3.3 Business model innovation and performance

Business model innovation gives social enterprises the first-mover advantage, opening up new markets and increasing market share^[48]. On the one hand, business model innovation provides irreplaceable products and services, and social enterprises raise the threshold of customer switching and retain existing customers. On the other hand, business model innovation constantly brings new products and services, and social enterprises are capable of taking the first-mover advantage and acquiring new customers^[22]. In summary, business model innovation increases the switching costs of original customers and constantly develops new customers. Therefore, social enterprises will have high bargaining power, have large profit margins, and then achieve good economic performance.

These arguments lead us to propose the following hypothesis:

H3a. Business model innovation has a positive effect on the economic performance of social enterprises.

Social enterprises solve the unmet needs of the government and the market through business model innovation^[49]. Business model innovation promotes social enterprises to attract government and foundation funding and obtain public service contracts. Through business model innovation, social enterprises are able to provide new products and new types of services, offer new pricing combinations for service recipients, expand social services to different regions, and achieve social performance.

These arguments lead us to propose the following hypothesis:

H3b. business model innovation has a positive impact on the social performance of social enterprises.

3.4 Mediating role of business model innovation

According to resource-based theory, resources affect the strategic activities of enterprises and then affect performance^[17]. Good social relations promote communication between social enterprises and stakeholders and facilitate information exchange. Information exchange provides ideas and opportunities for social enterprises to propose new value propositions and conduct business model innovation to fulfill emerging market demands and social service demands^[43]. At the same time, good social relations provide resources, such as demand information resources, financial resources, policy resources, and volunteer resources, which empower social enterprises to establish new connections, build new ways of value delivery and achieve business model innovation^[43,44,47]. Business model innovation integrates and optimizes the allocation of resources to create value^[50]. Through business model innovation, social enterprises deploy and innovate the use of resources to propose new value propositions, provide new products, and capture more market share. This not only enables the retention of old customers and increases their transfer costs but also captures new customers and gains a first-mover advantage, thus achieving good performance. In addition, business model innovation enables social enterprises to attract government and foundation funding, obtain public service contracts, and provide unmet services that are overlooked by commercial organizations or governments^[35], thus achieving good performance. Therefore, social relations promote the business model innovation of social enterprises to achieve good economic and social performance.

These arguments lead us to propose the following hypothesis:

H4a. Business model innovation mediates the relationship

between social relations and economic performance.

H4b. Business model innovation mediates the relationship between social relations and social performance.

3.5 Moderating role of market information management capability

The transformation of resources into business model innovation is influenced by internal capabilities^[24]. Market information management capability refers to the ability to obtain, process, and take effective action on stakeholder information^[6]. When market information management capability is strong, social enterprises communicate fluently with stakeholders and exchange information across borders. Social relations bring more ideas for business model innovation, as fragmented information is integrated and utilized by market information capability. At the same time, social enterprises build trust with partners, have better access to demand information, and share and integrate more information and resources. Social relations bring more resources to facilitate business model innovation. In summary, when market information capability is strong, social relations bring more information and resources, and they are better integrated and utilized to discover opportunities that cannot be found by fragmented information^[13]. Therefore, social enterprises identify key information and needs^[51], explore new opportunities, and better achieve business model innovation.

These arguments lead us to propose the following hypothesis:

H5. Market information management capability plays a positive moderating role in social relations and business model innovation. The higher the market information management capability is, the stronger the role of social relations on business model innovation.

In summary, we propose the research framework of this paper, as shown in Fig. 1.

4 Research design

4.1 Sample selection

The sample of this study is Chinese social enterprises. Data were collected using a web-based questionnaire research method. Contact information for social enterprises was obtained through social enterprise workshops. The questionnaires were completed by social enterprise leaders because they usually have a better understanding of the overall business than other stakeholders of the company.

A total of 210 questionnaires were collected, and after post-screening and sorting, 12 questionnaires with missing an-

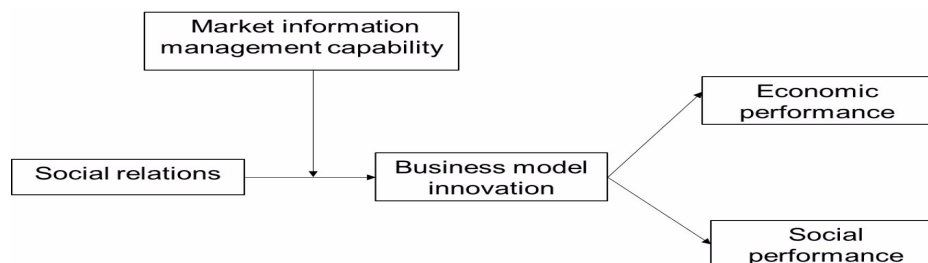


Fig. 1. Theoretical framework.

Table 2. Basic characteristics of sample companies (N=198).

Registration	Ratio	Year of establishment	Ratio
Civil registration	40.91%	<10 years	53.54%
Business registration	43.43%	11–20 years	31.31%
other	15.66%	>20 years	15.15%
Number of full-time employees	Ratio	Industry	Ratio
0–10	55.56%	Education/research	18.18%
		Environmental	6.06%
11–50	22.22%	Health care/aging	24.24%
		Finance	2.53%
Over 50	22.22%	Public support organizations	15.15%
		Community employment	33.84%

swers were excluded. Finally, 198 valid questionnaires were obtained, with an efficiency rate of 94.29%. The basic characteristics of the sample companies are shown in Table 2.

4.2 Variable measurement

In this study, all of the variables were measured using well-established scales developed by scholars, and the accuracy of the translation of the question items was ensured by back-translation. Four heads of social enterprises were selected for prestudy before formal distribution, and the formulation of some question items was revised based on feedback. The questionnaire measures were conducted using a five-point Likert scale (1 indicates complete nonconformity, 5 indicates complete conformity).

Social relations were measured with a 10-item scale^[13]. It included questions about relations with donors, beneficiaries, volunteers, competitors, marketing and technical partners, government agencies, community managers, and other stakeholders. Business model innovation was measured with a 10-item scale^[22], which was modified from the prestudy. It included 10 questions about new combinations of product, service, and information offerings, bringing together new players, new incentives, and novel ways of connecting businesses. Market information management capability was measured from the work of Liu et al.^[6], including 4 questions on the information and needs and satisfaction of beneficiaries, donors, and competitors, the ability to develop marketing programs in response to market research, and the ability to make the most market research information. Economic performance was measured from the work of Liu et al.^[6], including 10 items about increasing sales of products and services, financial profitability, market share growth, acquiring new customers, expanding business activities to different regions, and

engaging in more different types of business activities. Social performance was measured from the work of Liu et al.^[6], including 11 questions about obtaining public service contracts, obtaining government or foundation funding, obtaining new donors and volunteers, expanding social services to different regions, and serving more community beneficiaries.

For the control variables, five variables were selected based on existing studies: organization registration status^[23], years of organization establishment^[10], number of full-time employees^[52], industry to which the organization belongs^[39] and regulatory uncertainty^[53]. Regulatory uncertainty refers to the extent to which governmental regulations and policies change frequently and unpredictably^[53]. It affects firms' operational behavior and performance^[54].

5 Empirical analysis and hypothesis testing

5.1 Reliability and validity analysis

In this study, the Harman one-way test was first used to test for common method bias^[55]. Factor analysis of all the question items measured showed a cumulative contribution of 65.43%, and the variance explained by the first factor was 17.10%, which is below the 40% threshold, indicating that common method bias is unlikely to pose a threat to the study results.

SPSS 22.0 software was used to test the reliability of the questionnaire data. From Table 3, the Cronbach's alpha of market information management capability, business model innovation, social relations, economic performance, and social performance were all greater than 0.7, indicating that the scale has good reliability. The combined reliability (CR)

Table 3. Reliability and validity evaluation indicators of measurement scales.

Variables	Items	Loading	AVE	CR	Cronbach's α
Market information management capability	4	0.703–0.896	0.630	0.871	0.869
Business model innovation	10	0.726–0.887	0.667	0.952	0.952
Social relations	11	0.787–0.622	0.531	0.926	0.908
Economic performance	11	0.588–0.854	0.546	0.928	0.911
Social performance	10	0.560–0.822	0.502	0.916	0.929

Table 4. Correlation analysis results with AVE square root.

Variables	Mean	SD	1	2	3	4	5
1 Market information management capability	3.830	0.666	(0.794)				
2 Business model innovation	3.869	0.656	0.561**	(0.817)			
3 Social relations	3.928	0.538	0.627**	0.693**	(0.729)		
4 Economic performance	3.796	0.612	0.571**	0.676**	0.606**	(0.739)	
5 Social performance	3.682	0.750	0.486**	0.641**	0.636**	0.556**	(0.708)

The diagonal line is the square root of AVE and ** indicates $p < 0.010$.

Table 5. Discriminant validity of HTMT.

Variables	1	2	3	4	5	6
1 Business model innovation						
2 Economic performance	0.739					
3 Market information management capability	0.616	0.651				
4 Social performance	0.688	0.609	0.545			
5 Social relation	0.739	0.680	0.704	0.683		
6 Int_social relation × market information management capability	0.147	0.084	0.040	0.064	0.129	

values of all variables were greater than 0.7, indicating good combined reliability. The average variance extracted (AVE) values of all variables were greater than 0.5, and the variables had good convergent validity. Discriminant validity was tested by whether the square root of AVE was greater than the correlation coefficients between the variables. From Table 4, the square root of the AVE of the variables was greater than all the correlation coefficients between the peer and the same column, which indicated that the scale had good discriminant validity. In addition, we performed the HTMT test. As shown in Table 5, all data results are less than 0.85, indicating that the data results have good discriminant validity^[56].

Confirmatory factor analysis (CFA) was conducted on the variables using AMOS 24.0 software, and the results are shown in Table 6. Compared with other models, the five-factor model had better fit indices ($\chi^2/df=2.110$, CFI=0.967, IFI=0.967, TLI=0.958, RMR=0.020), which implies that the five variables involved in this study had high discriminant validity.

Table 6. Validation factor analysis.

Model	χ^2/df	RMSEA	CFI	IFI	TLI	RMR
Five-factor model	2.117	0.075	0.967	0.967	0.958	0.020
Four-factor model	4.699	0.137	0.886	0.887	0.860	0.047
Three-factor model	8.583	0.196	0.742	0.743	0.696	0.121
Two-factor model	11.095	0.226	0.673	0.675	0.619	0.063
One-factor model	12.316	0.240	0.630	0.631	0.573	0.055

Five-factor model: social relations, market information management capability, business model innovation, social performance, economic performance; four-factor model: social relations + market information management capability, business model innovation, social performance, economic performance; three-factor model: social relations + market information management capability, business model innovation, social performance + economic performance; two-factor model: social relations + market information management capability + business model innovation, social performance + economic performance; one-factor model: social relations + market information management capability + business model innovation + social performance + economic performance.

5.2 Hypothesis testing

In this study, the sample data were analyzed by stratified regression using SPSS 22.0, and the data results are presented in Table 7. Model 3 and model 5 tested the main effect, model 2, model 4, and model 6 tested the mediating effect, and model 1 tested the moderating effect.

5.2.1 Main effect test

Social relations are regressed on performance; by model 3, social relations have a significant positive effect on the economic performance of social enterprises ($\beta=0.544$, $p < 0.001$), thus supporting hypothesis H1a. In model 5, there is a significant positive effect of social relations on the social performance of social enterprises ($\beta=0.567$, $p < 0.001$), thus supporting hypothesis H1b.

5.2.2 Mediating effect test

This study uses Baron and Kenny’s stepwise regression method for hypothesis testing. The existence of a mediating effect should satisfy the following three conditions: (i) the

Table 7. Regression analysis results.

	Business model innovation		Economic performance		Social performance	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Control variables						
Registration	0.064	0.067	0.081	0.052	-0.082	-0.104
Year of establishment	-0.011	-0.004	-0.055	-0.050	0.020	0.024
Industry	0.014	0.012	0.105	0.099	-0.085	-0.090
Number of full-time employees	0.022	-0.006	0.092	0.082	-0.017	-0.025
Regulatory uncertainty	0.153**	0.118*	0.166**	0.095	0.259***	0.207***
Independent variable						
Social relations	0.647***	0.532***	0.544***	0.247**	0.567***	0.344***
Intermediary variable						
Business model innovation				0.459***		0.345***
Moderating variable						
Market information management capability		0.198*				
Interaction term						
Market information management capability × social relations		0.110*				
R^2	0.504	0.538	0.412	0.516	0.488	0.547
ΔR^2	0.504	0.033	0.412	0.105	0.488	0.059
F	32.406***	27.468***	22.276***	28.970***	30.388***	32.840***
ΔF	32.406***	6.810***	22.276***	41.086***	30.388***	24.819***
VIF(MAX)	1.275	1.716	1.275	2.018	1.275	2.018

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

independent variable has a significant influence on the dependent variable; (ii) independent variables have a significant impact on the mediator variables; and (iii) when independent variables and mediators jointly explain the dependent variable, the effect of the mediator is significant, while the effect of the independent variable disappears or weakens.

The first step is the regression of social relations to performance. We found that the main effect existed, that is, H1a and H1b held. The second step is social relations to business model innovation regression. From model 1, social relations had a significant positive effect on business model innovation ($\beta = 0.647, p < 0.001$); thus, H2 was verified. In model 4, there was a significant positive effect of business model innovation on the economic performance of social enterprises ($\beta = 0.459, p < 0.001$), thus supporting H3a. In model 6, the regression results showed that business model innovation had a significant positive impact on social enterprise social performance ($\beta = 0.345, p < 0.001$), thus supporting H3b. In the third step, social relations and business model innovation were regressed on performance simultaneously as independent variables. In model 4, when economic performance was the dependent variable, the effect of social relations on

economic performance was still significant ($\beta = 0.247, p < 0.01$), indicating that business model innovation played a partial mediating role between social relations and economic performance, thus supporting H4a. In model 6, when social relations and business model innovation were simultaneously used as independent variables and social performance was the dependent variable, the effect of social relations and social performance was still significant ($\beta = 0.344, p < 0.001$), indicating that business model innovation plays a partially mediating role between social relations and social performance, thus supporting H4b.

Meanwhile, this study adopted the bootstrap method to further test the mediating role of business model innovation, and the results are shown in Table 8 and Table 9. The results of the mediation test, (LLCI, ULCI) interval did not contain 0, which means there was a mediation effect, and Effect is the size of the mediation effect. The results of the test indicated that within the 95% confidence interval, the mediating effect of business model innovation between social relations and economic performance existed, and the interval of the mediating effect was (0.222, 0.461). The interval did not contain 0, and the mediating effect was 0.338, thus supporting H4a. The

Table 8. Bootstrap test of the mediating effect of social relations-economic performance.

	Effect	Bootse	BootLLCI	BootULCI	Ratio
Total effect	0.619	0.078	0.469	0.774	
Mediation effect	0.338	0.060	0.222	0.461	54.60%
Direct effect	0.281	0.094	0.102	0.472	45.40%

Table 9. Bootstrap test of the mediating effect of social relations-social performance.

	Effect	Bootse	BootLLCI	BootULCI	Ratio
Total effect	0.790	0.094	0.605	0.976	
Mediation effect	0.311	0.082	0.166	0.485	39.37%
Direct effect	0.479	0.476	0.126	0.23	60.63%

mediating effect of business model innovation between social relations and social performance existed, and the mediating effect interval was (0.166, 0.485). The interval did not contain 0, and the mediating effect was 0.311, thus supporting H4b.

5.2.3 Moderating effect test

To test the moderating effect, in this study, we first standardized social relations and market information management capability to avoid the problem of multicollinearity and then constructed the interaction term of social relations and market information management capability. Then, the interaction term is regressed on business model innovation, and if the product term is significant, a moderating effect exists. The regression result of model 2 showed that the interaction term of social relations and market information management capability had a significant effect on business model innovation ($\beta=0.110, p<0.05$), thus supporting the hypothesis.

To reveal the moderating effect more clearly, our study adopted the method proposed by Cohen^[57] to draw the moderating effect analysis under the basis of market information management capability plus or minus one standard deviation, as shown in Fig. 2.

5.3 Robustness test

Considering that the data were collected at the same point in time, there may be endogeneity issues between social ties and social enterprise performance, which would cause biased or inconsistent regression results. This is because the higher the performance of the social enterprise is, the stronger the social enterprise's connection to the outside world, and the better the social relations may be. To rule out this problem, instrumental variables that are strongly correlated with social relations but are not affected by social enterprise performance need to be found, and the model needs to be estimated using instru-

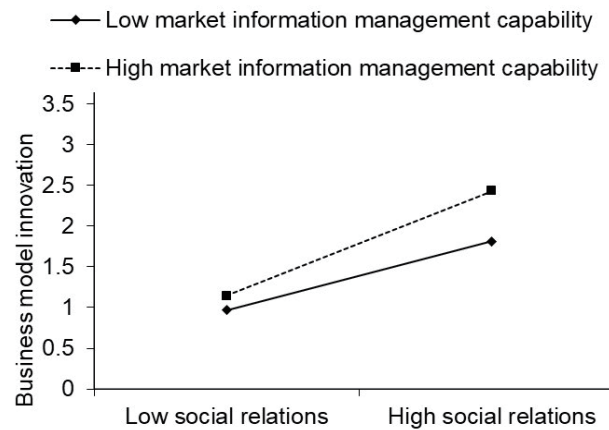


Fig. 2. Moderating effect of market management capability between social relations and business model innovation.

mental variables. Customer orientation is chosen as the instrumental variable in this study. Customer orientation refers to the enterprise's focus on current and future customer demand^[58]. When customer orientation is high, social enterprises actively establish contacts with the outside world, obtain resources to meet customer needs, receive public recognition, government support and consumer trust, and establish good social relations. Therefore, this study uses customer orientation as an instrumental variable for social relations, and the measurement scale is derived from Narver and Slater^[58].

After obtaining the instrumental variables, endogeneity tests were performed using a two-stage least squares method^[59]. First, formalization regressed customer orientation on social relations. Based on the results of model 7 in Table 10, it is clear that customer orientation has a significant effect on social relationships ($\beta=583, p<0.001$). In the second stage, based on the regression results of model 7, the

Table 10. Robustness test.

	Social relations (Model 7)	Economic performance (Model 8)	Social performance (Model 9)
Registration	-0.026	0.093	-0.073
Year of establishment	0.032	-0.060	0.017
Industry	0.087	0.070	-0.110
Number of full-time Employees	0.018	0.057	-0.042
Regulatory uncertainty	0.191	0.075	0.195
Customer orientation	0.583***		
Social relations (predictor)		0.554***	0.513***
R^2	0.658	0.612	0.630
F	24.293***	19.100***	20.991***

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

predicted values of the endogenous variables of social enterprise performance were calculated, and the predicted values of social enterprise performance were tested by regression. The results of models 8 and 9 in Table 10 are consistent with the results of models 3 and 5 in Table 7, indicating that the findings are not affected by the endogeneity problem due to bidirectional causality and that social relations have a positive effect on social enterprise performance.

6 Research findings and management implications

Based on the survey data of 198 social enterprises, this paper reveals the mechanism of social relations' influence on social enterprise performance, with business model innovation as a mediating variable and market information management capability as a moderating variable. The results of the data analysis show that social relations have a positive impact on social enterprise performance. Business model innovation plays a partially mediating role between social relations and social enterprise performance. Market information management capability positively moderates the relationship between social relations and business model innovation.

6.1 Theoretical contributions

This paper has three main theoretical contributions.

First, this paper empirically verifies that social relations have a positive effect on economic and social performance. Previous studies have mainly focused on internal resources, with relatively little focus on external resources. From internal resources perspective, entrepreneurial characteristics^[3-5] (entrepreneurial experience, entrepreneurial enthusiasm, entrepreneurship, etc.) and organizational characteristics^[6-11] (value orientation, marketing capabilities, etc.) influence access to and the use of resources in social enterprises and thus affect performance. External resources are also very important to development, as they provide opportunities and possibilities for social enterprises. This paper verifies the positive effect of social relations on social enterprise performance from external resources perspective and enriches the antecedents of social enterprise performance. Social relations provide resources and information that are unavailable in the open market and thus contribute to social enterprise performance^[14]. Furthermore, this study responds to the call for the exploration of the impact of social relations on social enterprise performance^[49].

Second, this paper reveals the intermediary mechanisms from social relations to the performance of social enterprises. Previous studies on social relations to performance were mainly based on the resource-capability-performance path. Social relations increase trust to improve organizational channel responsiveness capability^[31], bring new knowledge and resources to improve business operation capability^[16], drive resource coordination and reconfiguration to improve dynamic capabilities^[32], and achieve good organizational performance. However, scholars have also pointed out that a new research perspective should be introduced^[60]. Apart from the resource-capability path, resources also influence performance through the strategic activity path^[17]. Social enterprises engage in innovative strategic activities to achieve performance goals that are not being met by governments and public organizations.

However, only one study has explored the mediating role of strategic activity on social relations to performance^[33]. For social enterprises, the social operating environment is complex and involves various stakeholders. Good social relations expand communication and bring information and resources to create new combinations and establish new models^[19-21], thus achieving performance^[33]. We test the intermediary effect of business model innovation based on resource-based theory, which not only opens the black box of the role of social relations on performance but also complements the mediating mechanisms of strategic activity between resources and performance.

Third, this paper verifies the moderating effect of market information management capability on social relations and business model innovation. Previous boundary condition studies on social enterprise performance have mainly focused on external environmental factors, such as the market environment^[11] and regulation^[34]. Based on resource-based theory, this study explores and verifies the positive moderating effect of market information management capability. Strong market information management capability reinforces the positive effect of social relations on business model innovation. The results of this research support the idea that internal capabilities are important boundary conditions for the transaction of resources to business model innovation^[34].

6.2 Practical implications

According to our findings, social enterprises can take the following measures to enhance their economic and social performance.

First, social enterprises ought to strengthen social relations. Social enterprises maintaining good social relations with stakeholders can obtain the resources needed for operations, reduce the pressure of survival, and promote the achievement of performance goals. Social enterprises should maintain good relations with the government, keep abreast of the policies and decrees promulgated, and accept government macro guidance. In addition, social enterprises need to maintain good relations with market participants and share market information and customer information with upstream and downstream partners. Social enterprises are also supposed to pay attention to establishing good relations with volunteers and donors and actively listen to and adopt their feedback and suggestions.

Second, social enterprises should pay attention to business model innovation and build long-term competitive advantages through business model innovation. Social enterprises could strategically conduct business model innovation in accordance with the organization's economic and social purposes. At the strategic level, social enterprises need to focus on government-supported areas to reduce the risk of failure of business model innovation. At the operational level, social enterprises can choose a reasonable position in the value chain, develop unique value networks, reconfigure business connections, and carry out business model innovation. At the same time, internal and external communication should be strengthened to provide new ideas and creativity for business model innovation. Social enterprises should also focus on the external environment and improve internal capabilities to enhance resource utilization efficiency and provide irreplaceable products and services.

Third, social enterprises need to pay attention to improving market information management capability. Social enterprises are supposed to build efficient and complete basic information facilities, provide information exchange platforms and facilitate information exchange among stakeholders. In addition, social enterprises should introduce advanced equipment, such as information management systems, to reduce information search costs and time. Under these circumstances, social enterprises are able to improve their rapid response to market and social needs. In addition, social enterprises can also establish an information management team to collect, organize and give feedback on stakeholders' information and opinions and handle important information in a timely manner. Social enterprises need to cultivate information management talent and improve employees' information management awareness and information management capability. By taking these measures, social enterprises can integrate effective information to make actions and strategies conducive to the development of social enterprises.

6.3 Limitations and future research

This study has some limitations that need to be improved upon in future studies. First, our data were cross-sectional. Longitudinal data could be used in the future to track the mechanism of social relations and business model innovation on social enterprise performance over time. Second, the questionnaire data were completed by the social entrepreneur alone, potentially producing common method bias. We conducted Harman's one-way test to address common method bias, and subsequent studies can obtain data from multiple sources.

This study verifies that business model innovation mediates between social relations and social enterprise performance based on a resource-based view. First, the transformation process of social relations to performance is complex, and intermediary mechanisms can be further explored. Maintaining communication with the government and the public allows social enterprises to be trusted by the public and gain legitimacy^[61]. Thus, future research can consider the mediating role of legitimacy. Second, in this paper, market information management capability is considered a moderating variable. Other capabilities affect the process of integration of firm resources, such as dynamic capabilities that can integrate and reconfigure firm resources^[62]. Therefore, future research can consider the boundary role of dynamic capabilities.

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Conflict of interest

The authors declare that they have no conflict of interest.

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