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Research Article

Research on the Effect of Knowledge Network Embedding on the Dynamic Capabilities of Small and Micro Enterprises

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In the complex and dynamic economic environment, the growing pain of small and micro enterprises is long-standing. It is urgent to strengthen the research on the endogenous growth mechanism of small and micro enterprises. Based on the background of the era of knowledge-driven economy, this paper explores the relationship between knowledge network embeddedness and dynamic capabilities of small and micro enterprises with environmental munificence as the regulating variable. We have the structural equation empirical research with the data from 260 questionnaires of small and micro enterprises. The results show that structural embeddedness and relational embeddedness have a positive driving effect on the dynamic capability of small and micro enterprises, and environmental munificence plays a positive regulatory role in the positive impact of knowledge network embedding on the dynamic capability. The research conclusion is helpful for the small and micro enterprise to develop dynamic capacity and for the supportive policy making as well.

1. Introduction

With the continuous deepening of social division of labor and the fragmentation of production, the new ecology of "small and beautiful" enterprises is showing a trend of prosperity [1]. Small and micro enterprises (SMEs) have become the main body of market economic activities in many developing countries and play an irreplaceable role in increasing employment and promoting economic growth and technological innovation [2–4]. However, there are natural disadvantages such as lack of resources, small knowledge stock, limited human resources, and high cost. At present, the development of small and micro enterprises is faced with many difficulties. Weak operation foundation and financing difficulties are the fundamental problems, resulting in the lack of talent, vision, innovation ability, resource integration ability, and other aspects. Therefore, it is characterized by short life span and high failure rate, which make the SMEs' high failure rate [5]. For this reason, many people realize that it is important to solve the external policy support for small and micro enterprises, but it is more important for enter-

prises to build their own ability to transform knowledge into adaptability in a specific environment.

The update speed of knowledge and technology is constantly accelerating now, the life cycle of products, technologies, and enterprises becomes shorter, speed economy will replace economies of scale [6], and environmental uncertainty is greatly strengthened [7]. It is necessary to build a market-sensitive cognition ability, resource integration ability, and adaptability, that is, dynamic ability as the advantages brought by heterogeneous resources are no longer sustainable. Previous studies showed the prevariables of dynamic capabilities, including environmental uncertainty, organizational social capital, social networks, organizational learning, organizational resources, entrepreneurial orientation, and leadership style [8]. In fact, under the dual pressure of speed economy and knowledge creation cost, organizations attach more and more importance to acquiring knowledge through knowledge network embedding and creating new knowledge together with network partners [9], so as to build their dynamic capabilities and adapt to the needs of environmental changes. Small and micro enterprises are

considered to embed in alliances and operating networks due to their scale, resources, and capacity constraints and acquire universal knowledge in the network to narrow the knowledge gap with other businesses and keep the competitive advantages [10]. Research on startups, incubators, and small and micro enterprises supports the positive effects of dynamic capabilities on the competitiveness and performance [4, 11] and also explores the connotation of dynamic capabilities of SMEs. The government has been aware of the issue of high quality development of SMEs, while the academic research paid attention to the sustainable competitiveness and growth of small and micro enterprises [12]. The current research on dynamic capability is generally focused on high-tech enterprises, Internet companies, and manufacturing industries. It seems that dynamic capability is only an issue of large enterprises and has nothing to do with small and micro enterprises [13, 14]. According to the theory of Prahalad and Hamel [15], the dynamic capabilities of enterprises can only be accumulated gradually with a long period of time. Therefore, there are still doubts about the connotation of dynamic capabilities of SMEs [16] and whether small and micro enterprises can build their dynamic capabilities.

Based on this, we design the research framework of "knowledge network embeddedness-dynamic capabilities" for SMEs, introduce environmental munificence as a moderating variable, and raise the following research questions. What are the embedded connotations and dimensions of the dynamic capabilities of SMEs and knowledge networks? How do the dimensions of the embeddedness of knowledge networks affect the dimensions of dynamic capabilities? How does the environmental munificence regulate this process? Starting from the above questions, we explore the role of the embedded knowledge network of SMEs in the construction of dynamic capabilities and the regulating effect of environmental munificence and provide theoretical support for enterprises to learn external knowledge to realize the transformation of dynamic capabilities and also provide a reference for formulating incentive support policies.

2. Concept Description

2.1. Small and Micro Enterprises. The World Bank defines micro and small enterprises as those with fewer than 50 employees and less than $10 million in sales. Because of the vast territory and a large population, the enterprises' classification standards are different with other countries. According to the "Notice on Printing and Distributing the Standards for the Classification of Small and Medium-Sized Enterprises" issued by the National Bureau of Statistics (Gongxinbulianqi [2011] No. 300), we define the SME as enterprises with less than RMB 20 million operating revenue and less than 200 employees.

2.2. Dynamic Capabilities. Dynamic capabilities are "the ability of an enterprise to construct, adjust, integrate, and reconstruct internal and external resources and capabilities." After that, many scholars gave different understandings of the

dynamic capabilities of enterprises from different angles. The most representative ones are Winter, Eisenhardt, and Martin and domestic scholar Jiao Hao. Yan [17] divided the definition of dynamic capabilities in the literature into "gorgeous understanding" and "plain understanding." Huamei's understanding is easy to cause confusion with other concepts, and the connotation is too broad to lose its guiding significance. The naive understanding firstly understands the dynamic capability as an organizational capability that is routine. However, Teece [16] in an article questioned the view that dynamic capabilities are simply recognized as company-specific practices in 2012, especially that small and micro enterprises may lack organizational and technical redundant resources to repeatedly evaluate potential opportunities. Feng and Wei [18] classified dynamic capabilities into two categories: the ability to complete abstract organization and management processes and the ability to complete specific strategies and organizational processes. On the basis of absorbing literature viewpoints, this article believes that dynamic capabilities are the ability of an enterprise to perceive and identify opportunities and threats and the ability of an enterprise to construct, integrate, and reconstruct internal and external resources and capabilities to adapt to dynamic environmental changes. Existing literature believes that dynamic capabilities include market-oriented perception capabilities, absorptive capabilities, social network relationship capabilities, integration capabilities, organizational flexibility capabilities, innovation and transformation capabilities, and learning and utilization capabilities [19–23]. Based on the review of the above literature, combined with the characteristics of small and micro enterprises, this article divides the dynamic capabilities into opportunity perception capabilities, organizational flexibility capabilities, and resource integration capabilities.

2.3. Embeddedness of Knowledge Network. Knowledge network is a system which is composed of a collection of nodes and connections between nodes, and a company is the node of the knowledge network [24]. Drawing lessons from the viewpoint of Granovetter [25], the embeddedness of knowledge network is divided into structural embeddedness and relational embeddedness. Tasi pointed out through investigation that in the knowledge transfer within an organization, network structure, relationship, and location affect the absorptive capacity of new knowledge and the innovation and performance of business units [26]. Li et al. empirically analyzed the impact of relational embedding and structural embedding on the effectiveness of knowledge acquisition by investigating the characteristics of four different stages of knowledge search, recognition, reception, and innovation [27]. Structural embeddedness features in overall network structure described the position of network nodes, which is described by network scale, network centrality, and network position difference; the embeddedness characteristics of the relationship are used to describe the nature of the communication relationship between the enterprise and its network members, and it is described by the mutual trust, information sharing, and joint problem solving between the enterprise and various partners.

2.4. Environmental Munificence. Environmental munificence refers to the abundance of resources required by the enterprise in the environment and the difficulty of obtaining the required resources by the enterprise [28]. The stronger the environmental munificence, the easier it is for companies to obtain the resources they need from the environment, while the weaker the environmental munificence, the more difficult it will be for companies to obtain the resources they need from the outside world, and the higher the cost will be. In terms of the measurement of environmental munificence, the objective succedaneous indicators adopted at the very beginning include industrial growth rate, sales growth, price and cost difference, and the total number of employment. Therefore, more emphasis is placed on the difficulty for enterprises to obtain resources from the macro environment.

3. Literature Review and Research Hypotheses

3.1. Embeddedness of Knowledge Network and Dynamic Capabilities of SME. After the 1980s, the relationship between social networks and social resources and how companies obtain resources through social networks began to receive academic attention. The relationship between enterprises and external organizations has also developed from a single binary relationship to an interdependent network relationship between multiple organizations [29]. Network members can quickly fill up their own knowledge gaps through the flow, transfer, and integration of knowledge [30]. And it is conducive to improve the core competence of enterprises [31, 32], which can directly or indirectly bring survival opportunities for startup small and micro enterprises [33]. Regarding the source of dynamic capabilities, the evolutionary economics perspective emphasizes the synergy and coevolution between the organization and the environment, the technological perspective emphasizes the capability transformation mechanism, and the knowledge-based research perspective believes that "dynamic capabilities come from organizational learning" [34, 35]. For small, medium, and micro enterprises, acquiring knowledge from outside the organization has become an important strategy to make up for their own shortcomings [36], which affirms the positive effect of knowledge network embedding on the dynamic capabilities of small and micro enterprises.

Structural embeddedness focuses on the structure of the network and the quality of social connections between network nodes and mainly analyzes the relationship between the position of the research target company in the network and its performance. Companies that occupy the central position of the network have more opportunities for contact with cooperative companies [37], and exchanges and cooperation with other companies are more active. Owning even more key information channels in the network can be controlled, and it is easier to obtain the required technology and knowledge than other enterprises, which directly reduces the cost of searching for information by the focus enterprise, which is conducive to improving the enterprise's opportunity perception ability [38]. From the perspective of resource theory, companies in the center of the network can coordinate resources more easily because of their advantageous network

locations, good relationships between companies, and strong bargaining power, and they can also control and guide the flow of innovative resources to projects that are beneficial to their competitive position [38, 39]. It can even control and coordinate the trajectory and direction of new knowledge generated in the network, so the structural embeddedness has a positive impact on the organization's flexibility. The closer the position of an enterprise in the network is to the network center, the faster it can obtain resources and information, especially the knowledge required for technological innovation, which provides conditions for its control of resources and integration of resources [40].

Relationship embeddedness is the transaction and interaction between the two parties based on good expectations of future interests. Its connotation includes trust, information sharing, and joint problem solving [41]. The trust relationship between enterprises is a prerequisite for tacit knowledge sharing. The relationship capital based on this trust can promote the transfer of knowledge and information between organizations. Both the quantity and quality of transfers are improved with the improvement of interorganizational trust [42], and they are completed in the process of solving problems together. The deepening of information sharing among enterprises can improve the timeliness, accuracy, and extensiveness of information exchange in the process of cooperation. It is conducive for companies to prioritize market dynamics, seize market opportunities [43], become the industry's first mover, and gain first-mover advantage. The better the foundation of the trust relationship between the enterprise and other enterprises, the more helpful it is to quickly obtain more scarce and effective resources and avoid excessive redundant and invalid processes. At the same time, in order to obtain more heterogeneous resources, enterprises will strengthen their openness and cooperation arrangements with external parties [42, 44]. The resources acquired from the outside and the resources owned by the enterprise may be complementary or reinforcing. Therefore, the enterprise can also perceive how the resources are integrated and utilized.

Because of their own resource constraints and growth needs, small and micro enterprises generally take the initiative to strengthen the relationship with their partners when the network location is not dominant, so as to enhance the trust between the two parties, in order to deepen cooperation, strive to produce and strengthen the lock-in effect, and strengthen its own role in the value network, to reduce the impact of the turbulent environment and continuously improve its own adaptability.

In summary, the following research hypotheses are proposed:

H1: the embeddedness of knowledge network has a positive impact on the dynamic capabilities of small and micro enterprises

H1-1: structural embeddedness has a positive impact on opportunity perception of small and micro enterprises

H1-2: structural embeddedness has a positive impact on the organizational flexibility of small and micro enterprises

H1-3: structural embeddedness has a positive impact on the ability of small and micro enterprises to integrate resources
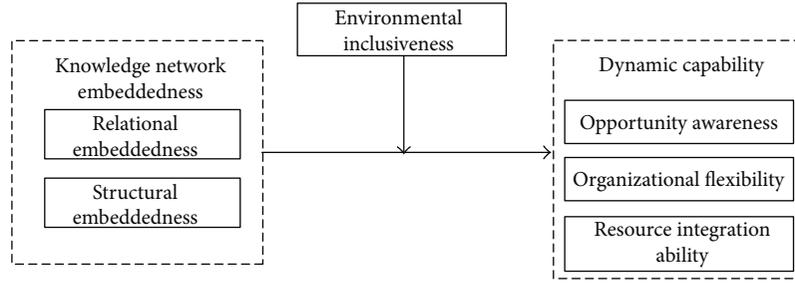
FIGURE 1: Theoretical model.

H1-4: relationship embeddedness has a positive impact on opportunity perception of small and micro enterprises

H1-5: relationship embeddedness has a positive impact on the organizational flexibility of small and micro enterprises

H1-6: relationship embeddedness has a positive impact on the ability of small and micro enterprises to integrate resources

3.2. Environmental Inclusive Moderating Effect. Environmental tolerance refers to the abundance of resources needed by the enterprise in the business environment of the enterprise and the degree of difficulty for the enterprise to obtain these resources [28]. Obviously, the more inclusive the environment is, the better living conditions can be created for enterprises. This is especially important for small and micro enterprises in the startup and growth stages. The initial policy support can bring easy access, market opportunities, and lower costs for enterprises. On the one hand, this rapid return can bring room for small and micro enterprises to survive, and on the other hand, it will strengthen enterprises' enthusiasm for policy dependence. Studies have shown that when environmental resources are sufficient and easy to obtain, the cost of resource acquisition is low, and the enterprise's survival pressure is small. It will also breed double organizational inertia at the structural and cultural levels and weaken the willingness of enterprises to obtain knowledge resources from the network [45, 46], resulting in the rigidity of the organization's core competence, but it is not conducive to improve organizational capabilities.

From the perspective of regional economic development results, my country's southeast coastal areas have the characteristics of a high degree of openness, a high degree of marketization, and a strong commercial and cultural atmosphere. At the same time, these characteristics derive a higher quality of government systems. The changes in the incentive structure brought about by the system can guide the competitive consciousness and innovative behavior of enterprises, and this is also one of the fundamental reasons for the differences in regional economic development [47, 48]. Macrolevel tolerance and microlevel corporate behavior form a mutually reinforcing coupling relationship. Therefore, there is a certain controversy in the current literature on the moderating effect of environmental munificence, which may be due to different research objects and perspectives or different definitions of the connotation of environmental munificence. Based on the differences in economic

development and the findings of the interviews at the beginning of the research, this paper proposes the following research hypotheses:

H2: environmental munificence positively regulates the relationship between the embeddedness of knowledge network and the dynamic capabilities of small and micro enterprises, that is, the stronger the environmental munificence, the more obvious the effect of embeddedness of knowledge network on the construction of dynamic capabilities of small and micro enterprises.

Based on the above theoretical analysis, the theoretical model construction is shown in Figure 1.

4. Research Design

4.1. Samples and Data Collection. The research object of this article is small and micro enterprises, which use questionnaire survey to complete data collection. The survey scope covered Zhejiang Province, Jiangsu Province, Henan Province, Hubei Province, Shanghai, Beijing, and other regions. Respondents must be middle-level or above managers with a college degree or above and have worked in the company for more than 3 years to ensure the correctness of their understanding of the questionnaire and the depth of their understanding of the company. A total of 350 questionnaires were issued and 306 were retrieved. Questionnaires that did not meet the requirements of the scale of the enterprise, the consistent response of the options, and the missing answers were excluded. There were 260 valid questionnaires, and the effective recovery rate was 74.3%. The specific situation of the sample is shown in Table 1.

4.2. Variable Measurement. The main variables in this study are measured using mature scales in existing literature at home and abroad to ensure the reliability and validity of the measurement tools. Using the Likert 7-point scale, "1" is very nonconforming, and "7" is very consistent.

(1) Structural Embeddedness. Refer to Fan et al. [39], Acemoglu et al. [48], Wu et al. [47], and other scholars to compile a scale. There are 5 measurement items in total. Typical items include "Your company has connections with many government agencies/universities/scientific research institutions/financial and investment institutions."

(2) Relationship Embeddedness. Refer to Uzzi [41], Balland et al. [49], and other scholars to compile a scale. There are 5

TABLE 1: Basic structural characteristics of the sample.

Enterprise attributes	Sample characteristics	Number of samples	Percent	Enterprise attributes	Sample characteristics	Number of samples	Percent
	1-2 years	47	17.97%		Electromechanical	24	9.15%
	3-5 years	59	22.55%		Construction industry	16	6.21%
Years of establishment	6-10 years	49	18.95%		Auto parts	9	3.5%
	11-15 years	39	15.03%		Food and drink	9	3.5%
	More than 15 years	66	25.49%		Other manufacturing	49	18.8%
	20 people or less	53	20.38%		Business	19	7.3%
Enterprise size	20 people–100 people	108	41.54%	Industry field of the company	Trading	17	6.5%
	101–199 people	99	38.08%		Financial	18	6.9%
	Below 500,000	39	15.00%		Advisory	9	3.5%
	500,000–1,000,000	50	19.23%		Software	13	5.0%
Total annual sales	1 million–5 million	66	25.38%		Catering	8	3.1%
	5 million–10 million	53	20.38%		Real estate	9	3.5%
	10 million–20 million	52	20.00%		Other service industries	60	23.1%

measurement items in total. Typical items include "Cooperative enterprise/institution and your company are willing to provide each other with the information each other needs."

(3) Chance Perception Ability. With reference to Jiao [22], Chen and Wang [50], and other scholars that compiled a scale, there are 5 measurement items for the measurement of opportunity perception ability. Typical items include "Your company can quickly obtain and analyze changes in consumer demand and preference."

(4) Organizational Flexibility. Refer to the scale compiled by Pavlou and El Sawy [51], Jiao [22], etc. There are 5 measurement items for organizational flexibility. Typical items include "Your company has unblocked communication channels, and information transmission between department members is accurate and fast."

(5) Ability to Integrate Resources. Refer to the scale compiled by Chen and Wang [50], Zhao et al. [52], etc. There are 5 measurement items for resource integration ability. Typical items include "Your company can centrally manage cross-departmental business to ensure work efficiency."

(6) Environmental Tolerance. Referring to the scale compiled by Tsai et al. [44] and Pavlou and El Sawy [51], there are 4 measurement items for environmental munificence. Typical topics include "The government's development plan provides strong support for enterprises."

(7) Control Variables. Judging from the research results of the enterprise life cycle theory and dynamic capability theory, the company's years, scale, and industry all have an impact on its position in the knowledge network, its ability to obtain resources, and its competitiveness. Therefore, age, scale, and industry are selected as control variables.

4.3. Reliability and Validity Test of Scale. In order to ensure that the scale has good content validity, the measurement

items used in this study are all from the mature scale of authoritative journals. Before the survey, we first conducted semistructured interviews with more than ten senior managers or entrepreneurs from six companies to verify whether the preliminary research ideas obtained through literature review are consistent with the corporate reality. The questionnaire was revised to improve the validity of the questionnaire. This paper uses SPSS19.0 software and internal consistency test to test the reliability of the scale of this study. The Cronbach's α values of the two variables in the embeddedness dimension of knowledge network are 0.890 and 0.902, respectively. The Cronbach's α values of the three variables of the dynamic capability dimension, opportunity perception capability, organizational flexibility capability, and resource integration capability are 0.851, 0.909, and 0.883, respectively. The Cronbach's α value of environmental tolerance is 0.872, indicating that the internal consistency of the measurement scale is good.

The validity test of the measurement scale is completed by exploratory factor analysis and confirmatory factor analysis. In the KMO suitability test and the Bartlett sphere test, the KMO values of knowledge network embeddedness, dynamic capabilities, and environmental tolerance are 0.810, 0.763, and 0.749, which are all greater than 0.7. And p is less than 0.05, indicating that the three variables are suitable for factor analysis, and then, use the principal component analysis method to perform factor component analysis on each item of the variable. The factor loads of all items of the three variables are greater than 0.5, and the cumulative variance contribution rates are 77.27%, 82.19%, and 73.13%, respectively. The analysis results are shown in Table 2. The factor loading and cumulative interpretation of each index meet the requirements, and the measurement scale has good convergence validity.

By establishing a structural equation model, this paper conducts confirmatory factor analysis on the dimensional variables of the embeddedness and dynamic capabilities of the knowledge network to verify whether the construct validity of each item in the scale is valid. The measurement model

TABLE 2: Exploratory factor analysis results ($N = 260$).

Variable	Item	Factor loading			Cumulative variance contribution rate	KMO value
		$F1$	$F2$	$F3$		
Structural embeddedness	AS1	0.878			43.009	
	AS2	0.876				
	AS3	0.810				
	AS4	0.806				
	AS5	0.849				
	AS6	0.791				0.810
Relational embeddedness	AR1		0.860		77.270	
	AR2		0.666			
	AR3		0.824			
	AR4		0.701			
	AR5		0.861			
	AR6		0.833			
Opportunity perception	CC1		0.849		28.048	
	CC2		0.754			
	CC3		0.871			
	CC4		0.837			
	CC5		0.698			
Organizational flexibility	CO1			0.938	55.417	0.763
	CO2			0.894		
	CO3			0.943		
	CO4			0.809		
	CO5			0.837		
Resource integration	CR1	0.736			82.188	
	CR2	0.807				
	CR3	0.868				
	CR4	0.850				
	CR5	0.813				
Environmental munificence	DE1	0.850			73.133	0.749
	DE2	0.861				
	DE3	0.782				
	DE4	0.922				

TABLE 3: Fitting of the measurement model.

Variable	Dimension	χ^2/df	CFI	RMSEA
Knowledge network embeddedness	Structural embeddedness	1.976	0.965	0.049
	Relational embeddedness			
Dynamic capability	Opportunity awareness	2.427	0.912	0.081
	Organizational flexibility			
	Resource integration ability			

and the fit are shown in Table 3. The fitting result of the knowledge network embeddedness measurement model is $\chi^2/df = 1.976$, CFI = 0.965, and RMSEA = 0.049, which is less than 0.1. The significance of each path coefficient is $p < 0.001$; the fitting result of the dynamic capability dimension measurement model is $\chi^2/df = 2.427$, CFI = 0.912, RMSEA = 0.081, and the significance of each path coefficient is $p < 0.001$. The fitting results of the measurement model of each variable are good, indicating that the dimensional division of the two variables and the validity of item construction are good [53, 54].

5. Empirical Results

5.1. Main Effect Test. In this paper, a structural equation model is constructed to test the relevant research hypotheses,
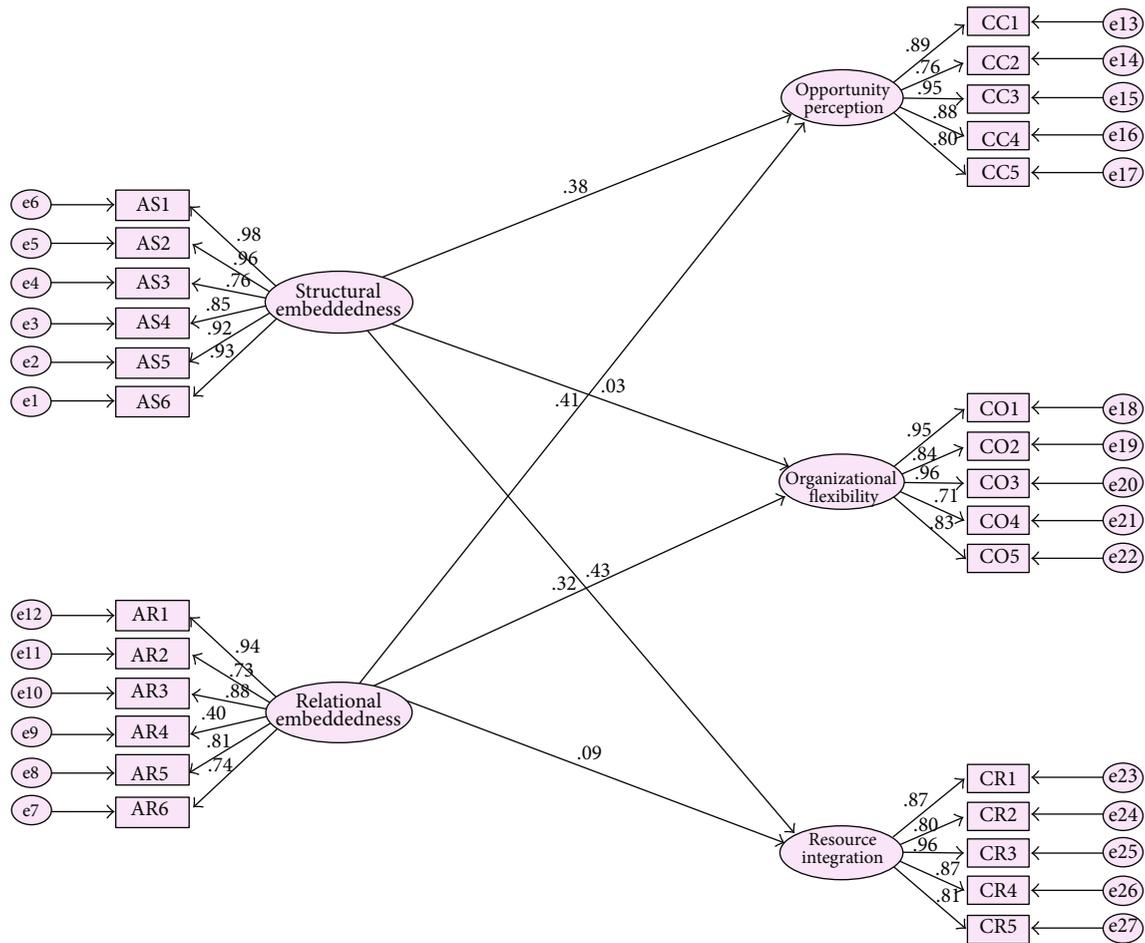
FIGURE 2: Structural equation model fitting diagram of the relationship between network embeddedness and dynamic capabilities.

and the model is revised through AMOS20.0. Firstly, establish the structural equation model between the independent variable and the dependent variable according to the theoretical basis, and test the relationship of each variable under the two dimensions of embeddedness of the knowledge network of small and micro enterprises and the three dimensions of dynamic capabilities. This article will use the maximum likelihood method to test the parameters of the structural equation model. The model fitting result will be evaluated from the significance of the model fit index and the hypothesis path. Choose χ^2/df, RMSEA, CFI, and TLI as the fitness index. The significance of the hypothesis path will be used to determine whether each hypothesis holds. Import the sample data into the AMOS20.0 software and test the initial model. The fitting results are shown in Figure 2. The fitting results of the structural equation model of the relationship between the embeddedness of the knowledge network and the dynamic capabilities are shown in Table 4.

It can be seen from Table 4 that the chi-square degree of freedom ratio of the main index of model adaptation is 3.393 > 3, and the other indicators do not fully meet the requirements of reasonable adaptation of the model. Therefore, on the premise of satisfying the theoretical basis, the fitting model needs to be revised according to the structural

equation model verification requirements. In the test summary of the path hypothesis, the significance of structural embeddedness to organizational flexibility and relationship embeddedness to resource integration $p > 0.05$ indicates that the relationship between variables is not significant and the hypothesis is invalid. Since the ratio of the chi-square degree of freedom of the initial model is greater than 3, it indicates that the model is not well adapted and needs to be further modified. After the correction, when the overall chi-square value of the model decreases, it indicates that the correction steps have produced an effect.

In the initial model, it was originally assumed that there is no correlation between the error terms of each measurement variable. However, the MI value from the fitting situation shows that the correlation between the error items of each variable is relatively high, indicating that there is a certain similarity between the items, leading to errors in the empirical data. Therefore, the fit of the model is affected, and the path between the error terms needs to be taken into account. So the correlation between e1, e3, e4, e5; e7, e8, e11, e12; e14, e15, e16; e18, e20, e21, e22; and e25, e26 is established to eliminate its impact on model adaptation. The modified structural equation model fitting diagram is shown in Figure 3, and the fitting results are shown in Table 5.

TABLE 4: Structural equation model fitting results of the relationship between embeddedness of knowledge network and dynamic capabilities ($N = 260$).

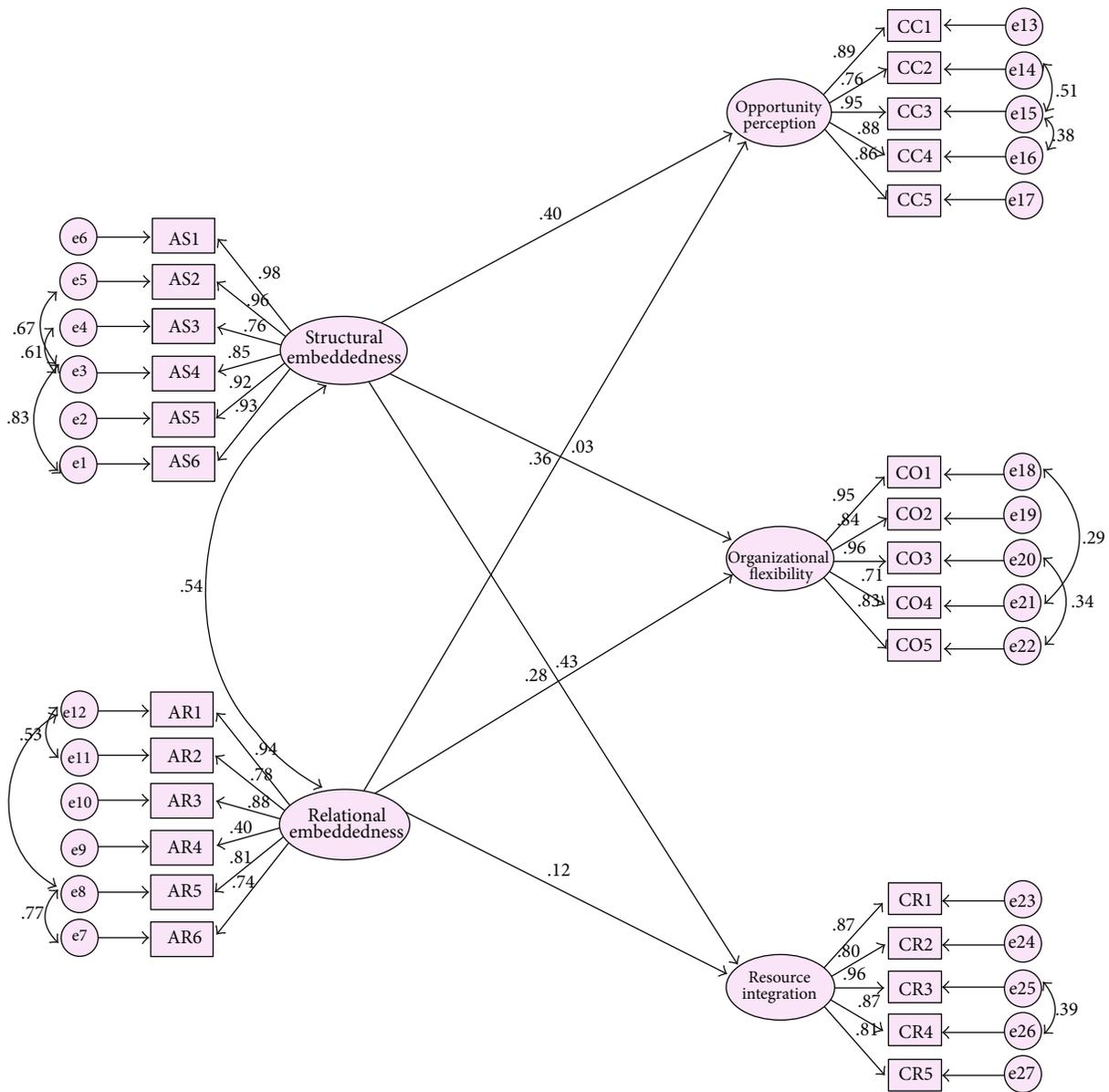| Path	Standardization factor	Nonstandardized coefficient	Critical ratio	p
Opportunity perception ← structure embeddedness	0.383	0.301	3.724	***
Organizational flexibility ← structure embeddedness	0.031	0.054	0.322	0.812
Resource integration ← structure embeddedness	0.234	0.203	2.328	**
Opportunity perception ← relationship embeddedness	0.407	0.395	4.215	***
Organizational flexibility ← relationship embeddedness	0.324	0.403	3.353	***
Resource integration ← relationship embeddedness	0.092	0.136	0.986	0.445
Chi-square degree of freedom ratio (χ^2/df)		3.393		
RMSEA		0.079		
CFI		0.908		
TLI		0.917		

FIGURE 3: Structural equation model fitting diagram of the relationship between embeddedness of knowledge network and dynamic capabilities (corrected).

TABLE 5: Fitting results of structural equation model of the relationship between network embeddedness and dynamic capabilities (corrected) ($N = 260$).

Path	Standardization factor	Nonstandardized coefficient	Critical ratio (C.R.)	p	Hypothesis
Opportunity perception ← structure embeddedness	0.403	0.482	4.029	***	H1-1 supported
Organizational flexibility ← structure embeddedness	0.029	0.041	0.217	0.792	H1-2 not supported
Resource integration ← structure embeddedness	0.231	0.277	2.408	**	H1-3 supported
Opportunity perception ← relationship embeddedness	0.356	0.364	4.012	***	H1-4 supported
Organizational flexibility ← relationship embeddedness	0.282	0.343	3.813	***	H1-5 supported
Resource integration ← relationship embeddedness	0.117	0.167	0.784	0.416	H1-6 not supported
χ^2/df		2.813			
RMSEA		0.071			
CFI		0.916			
TLI		0.922			

Note: *** indicates significance $p < 0.001$; ** indicates significance $p < 0.01$; * indicates significance $p < 0.05$.

TABLE 6: Hierarchical regression analysis results of environmental munificence on the embeddedness and dynamic capabilities of knowledge networks.

		Model one		Model two		
		Coefficient	p value	Coefficient	p value	VIF
Main effect	Knowledge network embeddedness	0.057	0.027*	0.125	0.046*	1.445
	Environmental munificence	0.274	0.004**	0.337	0.001***	1.812
Moderating effect	Knowledge network embeddedness∗environmental munificence			0.413	0.001	1.280
R^2		0.471		0.549		DW 2.036
Adjusted R^2		0.449		0.518		

The main effect equation is dynamic capability = $a + b$ knowledge network embeddedness + c environmental tolerance + e; the moderating effect equation is dynamic capability = $a1 + b$ knowledge network embeddedness + $c1$ environmental munificence + c' knowledge network embeddedness ∗ environmental munificence + e.

After revision, the model's fitness indicators basically meet the good standards, and the ratio of chi-square degree of freedom after correction drops to 2.813, indicating that the correction idea is correct, which helps to improve the model's fitness. The revised fitting results show that at the significance level of 0.001, structural embeddedness has a significant positive impact on opportunity perception ability and relationship embeddedness has a significant positive influence on opportunity perception ability and organizational flexibility ability (C.R.>2), assuming that H1-1, H1-4, and H1-5 are verified, respectively. At the significance level of 0.01, structural embeddedness has a significant positive impact on the ability to integrate resources (C.R.>2); hypothesis H1-3 is verified. Structural embeddedness has no significant impact on organizational flexibility ($p = 0.792$, C.R. = 0.217 < 2); H1-2 is not supported. Relationship embeddedness has no significant effect on resource integration ability ($p = 0.416$, C.R. = 0.784 < 2); H1-6 is not supported.

5.2. Regulation Effect Test. This article uses hierarchical regression analysis to test the moderating effect of variables. Hierarchical regression analysis is a step-by-step test by adding the interaction term formed by the independent variable and the moderating variable to the regression equation and then obtaining the degree of influence and significance of the moderating variable on the relationship of the variables.

It can be seen from Table 6 that in the hierarchical regression of the moderating effect of environmental munificence on network embeddedness and dynamic capabilities, the overall R^2 value is greater than 0.5, indicating that the regression model has a certain degree of interpretation. In the collinearity test, the embeddedness of the knowledge network, the inclusiveness of the environment, and the variance inflation factor (VIF) of the two interaction terms are all between 1 and 2, which meets the critical standard of less than 10. It shows that the regression equation does not have the problem of multicollinearity; in the autocorrelation test, the DW value is close to 2, indicating that the equation does not have the autocorrelation problem, and the above indicators are within a reasonable range, indicating that the regression equation model is effective.

In the interaction term model composed of independent variables and moderating variables, the significance of moderating effect coefficient $p = 0.001$ is less than 0.05, indicating that environmental tolerance has moderating effects on

network embeddedness and dynamic capabilities. And the lower slope coefficient ($b + c' *$ environmental tolerance) of the adjustment effect is greater than the lower slope coefficient b of the main effect, so it is a positive adjustment effect. Hypothesis 2 is verified.

6. Research Conclusions and Management Inspiration

After theoretical analysis and empirical research, based on the current situation of my country's small and micro enterprises, this paper discusses the logical relationship between the embeddedness, dynamic capabilities, and environmental tolerance of the knowledge network of small and micro enterprises. Explore the driving effect of the embeddedness of knowledge network on the production of dynamic capabilities of small and micro enterprises, and construct a corresponding theoretical model. In the context of the era of knowledge economy, the acquisition of resources through the knowledge network of small and micro enterprises is a necessary condition for creating a "small and sophisticated, small and beautiful" business model and achieving sustainable development of small and micro enterprises.

6.1. Research Conclusion. (1) The embeddedness of the knowledge network has a significant positive impact on the dynamic capabilities of small and micro enterprises. The embeddedness of the relationship has a significant impact on the company's opportunity perception and organizational flexibility, while the structural embeddedness has a significant impact on the opportunity perception and resource integration capabilities. Knowledge network embedding has become an important source for small and micro enterprises to obtain information and knowledge at low cost and improve their ability to adapt to the environment. At the same time, it shows that small and micro enterprises build a good relationship of trust with partner companies and complete work tasks together. It is conducive to obtain more direct information and tacit knowledge, so as to maintain the sensitivity to the market and the ability to respond to the market in a timely manner. Occupying the central position of the network is also conducive to improving small and micro enterprises to maintain relatively smooth information channels, obtain market and technical information in a timely manner, and eliminate the drawbacks caused by information asymmetry. At the same time, it is helpful for them to take advantage of existing resources and effectively realize resource allocation and resource sharing. But in fact, it is difficult for small and micro enterprises to be at the center of the knowledge network, so they pay more attention to the strength of the relationship with the cooperative enterprise, by increasing the number of partners, maintaining the density and depth of cooperation between the two parties, building trust, and making up for the lack of position in the network structure

Zahra et al. believe that the process of resource integration is very complex, including the activities of allocating, selecting, and reorganizing resources [55]. Trust relationship, information sharing, and joint problem solving cannot

directly promote the complex resource integration ability of the SME. At the same time, small and micro enterprises have a weak ability to occupy structural holes, so they do not have the ability to control and coordinate the flow of new knowledge generated within the network, so there is no significant positive correlation between the two.

(2) Environmental munificence has a positive moderating effect on the relationship between knowledge network embeddedness and dynamic capabilities of small and micro enterprises. The stronger the environmental munificence, the more obvious the effect of knowledge network embeddedness on dynamic capabilities. The existing literature's measurement of environmental tolerance includes factors such as government development plans, financial policies, industry development space, and resource support from the market. These factors are inexorably related to local economic development and regional culture. In areas with a more developed economy and a higher degree of openness, the business culture is often mature, the local government has a strong sense of service for small and micro enterprises, and the environment is more tolerant. The crisis awareness, competition awareness, and growth awareness of local small and micro enterprises are stronger than similar enterprises in other regions, and they pay more attention to being embedded in the knowledge network and acquire knowledge and skills from network members to strengthen their resilience and competitiveness. Therefore, as the degree of environmental munificence increases, the role of knowledge network embedding in the dynamic capabilities of small and micro enterprises has been further strengthened, which is also consistent with the conclusions of the previous interviews in this study

6.2. Management Enlightenment and Suggestion. Faced with the external environment and the internal dilemma of lack of resources, small and micro enterprises have become a life-and-death issue for small and micro enterprises to build their own dynamic capabilities. The empirical conclusions of this article provide certain practical suggestions for managers of small and micro enterprises.

(1) Small and micro enterprises should actively embed knowledge networks and pay attention to the construction of network relationships. The current competition is no longer a competition between individual enterprises, especially small and micro enterprises, especially when facing the impact of external crises. Research shows that striving for a favorable network location and maintaining good network relationships have a positive effect on small and micro enterprises' ability to maintain opportunity perception, organizational flexibility, and resource integration. Although it is difficult for small and micro enterprises to occupy the central position of the network, they should actively connect with the focal enterprises in the process of embedding and building social networks and try to be as close to the central position as possible. In addition, it is recommended that small and micro enterprises conduct stakeholder management. Under the condition of certain network maintenance costs, they should classify stakeholders according to their interest relationships, sort them according to their importance, and

adopt different methods to maintain relationships, by actively participating in the project, increasing the common language, promoting a common problem-solving framework, enhancing trust, and acquiring more valuable knowledge and skills in communication

(2) The government needs to adopt a combination of support and incentives to improve the environment for small and micro enterprises. Our country has a vast territory, and the level of economic development varies significantly between regions. Local governments have formulated many policies related to small and micro enterprises in accordance with local conditions to regulate and support the development of local small and micro enterprises. Therefore, this research found in the interview stage at the initial stage of the research that, for small and micro enterprises, there must be supportive policies to protect the living space of local small and micro enterprises, but they cannot be simply supported. The later empirical results also support this view. Environmental munificence has a positive regulatory effect on the relationship of "knowledge network embeddedness-dynamic capabilities." First of all, higher environmental munificence objectively provides better operating conditions for small and micro enterprises. For small and micro enterprises with scarce resources, the compensation effect brought by external knowledge and resources is more obvious. The dependence of small and micro enterprises on external resources has been further strengthened. Second, from the perspective of the formation of environmental tolerance and enterprise initiative, factors such as the degree of regional economic development, government guidance, and regional culture all have an inherent and lasting relationship with it. In general economically developed areas, the government has a strong sense of service to enterprises, many encouraging policies, and a high degree of environmental tolerance. At the same time, the degree of marketization in this area is also higher, and the competitiveness of enterprises is also stronger. Companies that grow up in this business environment are also paying more and more attention to acquiring knowledge and skills through network embedding to improve their competitiveness. Therefore, environmental munificence strengthens the relationship between the embeddedness of knowledge networks and dynamic capabilities. Based on the above analysis, on the one hand, the government supports small and micro enterprises by implementing supportive policies in finance, taxation, information, technology, and other aspects, integrating regional resources and alleviating resource bottlenecks and external crisis impacts. On the other hand, it is more important to improve the business conditions, strengthen the construction of business culture, and form a good business environment in the region. Third, increase economic interaction with surrounding areas, cultivate the strategic pattern and competitive awareness of entrepreneurs of small and micro enterprises, and avoid the breeding of innovation inertia. Fourth, it is recommended that the government provide incentive support to companies that have outstanding capabilities in technological innovation, energy conservation, emission reduction, and employment absorption, especially those that have substantively explored the transformation from factor-driven to innovation-driven.

Finally, small and micro enterprises should be supported in terms of talent policies. After all, the staff is the carrier of knowledge. Only by solving the problem of talent can enterprises cultivate their sustainable learning ability and the sustainable competitiveness

6.3. Limitations and Prospects. Although this article follows the logic of scientific research, it still has certain shortcomings. First, there is still room for improvement in the measurement and scoring process of the scale. Although the measurements of all variables are formed on the basis of literature collation and interviews with enterprises, they have passed reliability and validity tests. However, due to the limited research results on the dynamic capabilities of small and micro enterprises, it is inevitable that the scale reference in the article is not sufficiently targeted. Second, it did not conduct further subdivision research based on industry characteristics and regional differences. In the survey of this research, small and micro enterprises are the research objects, and the industries involved include mechanical and electrical, chemical, materials, textile, construction, trade, finance, software, catering, and other industries. The surveyed companies come from several provinces and municipalities across the country. In fact, different industries in different regions are in different life cycle stages, and their competition in the industry and the driving force for industry development are different. These factors all cause different sources of enterprise dynamic capabilities, and the mechanism of knowledge network embedding for the construction of dynamic capabilities of enterprises is also different. The above two deficiencies can also be referred to as the future direction of further research on small and micro enterprises.

Data Availability

The data used to support the finding are available upon the author's reasonable request.

Conflicts of Interest

The author declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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