Research on The Impact of Entrepreneurial Patchwork on Firm Strategic Flexibility Based on Stata Regression Analysis:

Mediating Effect of Knowledge Absorptive Capacity

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Abstract

Strategic flexibility is a key dynamic capability required by enterprises to improve resource efficiency. Based on the resource-based view, entrepreneurial patchwork theory and dynamic learning theory, this study constructs a theoretical model of "entrepreneurial patchwork - knowledge absorption capacity - Strategic Flexibility", introduces environmental dynamics as a regulating variable, and discusses the promotion path of entrepreneurial patchwork on strategic flexibility. SPSS 24.0 and Amos 23.0 software are used to analyze the reliability and validity and correlation of the data. Stata 15.0 software is used to conduct regression analysis based on multiple hierarchical regression method. The empirical results show that: (1) entrepreneurial patchwork has a positive impact on enterprise strategic flexibility; (2) Knowledge absorptive capacity plays an intermediary role between entrepreneurial Patchwork and enterprise strategic flexibility; (3) Environmental dynamics not only positively regulates the relationship between knowledge absorption capacity and enterprise strategic flexibility, but also positively regulates the overall intermediary model.

Key words-*Entrepreneurial patchwork; Strategic flexibility; Knowledge absorption capacity; Environmental dynamics*

1. INTRODUCTION

China's economy has entered a high-quality development stage, and the characteristics of the new era give enterprises new missions and requirements. As the "foundation of the country" in the era of digital and information transformation, enterprises constantly adjust their strategies, transform and upgrade and adapt to the new market competition environment. The novel corona-virus pneumonia spread in early 2020, which led to the great difficulties and challenges for Chinese manufacturing enterprises. It is imperative to seize opportunities and adjust strategies. Strategic flexibility helps enterprises dynamically adjust their strategic focus, flexibly switch strategic priorities [1], have the ability to deal with risks and market uncertainty through reconfiguration of enterprise resources and operation mode [2], and create first mover advantages to maintain their existing market position or tap potential future markets.

Developing strategic flexibility requires enterprises to have the ability to deeply tap the potential value of existing resources (Tao Yan et al., 2015). In today's resource constrained conditions, in order to solve the shackles of resource scarcity, implementing the "patchwork" of resources. Entrepreneurial patchwork can break the conventional combination of resources, creatively integrate and "make full use of" resources, so as to resolve the dilemma of resource scarcity, and provide new insights on how to enhance strategic flexibility for entrepreneurial enterprises. Knowledge absorptive capacity is a dynamic ability to continuously acquire, internalize and apply knowledge, which affects the rationality and flexibility of enterprise resource allocation (Zahra and George, 2002) [3]. Entrepreneurial patchwork emphasizes the integration and allocation of existing resources, uses homogeneous resources to create heterogeneous value, and promotes knowledge transfer and knowledge absorption, so as to better develop

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strategic flexibility. At the same time, the dynamics of the environment describe the intensity and unpredictability of the environmental changes in which the enterprise is located, and the strategic flexibility is also affected by the dynamic external environment (Nadkarni, 2007) [4].

Based on the above analysis, the innovation of this paper is mainly reflected in the following points: first, how does entrepreneurial patchwork affect enterprise strategic flexibility from the perspective of resource constraints? This paper clarifies the impact path of entrepreneurial patchwork on strategic flexibility through knowledge absorptive capacity, and provides a reference for enterprises to enhance their strategic flexibility by integrating existing resources to promote the improvement of knowledge absorptive capacity. Secondly, this study brings environmental dynamics into the model to explore the regulatory effect of environmental dynamics on the action path of "entrepreneurial patchwork - knowledge absorption capacity - Strategic Flexibility", which has important guiding significance for improving enterprise strategic flexibility.

2. THEORETICAL BASIS AND RESEARCH HYPOTHESIS

2.1.Entrepreneurial patchwork and strategic flexibility

The concept of entrepreneurial patchwork was first proposed by Baker and Nelson (2005) [5], and is defined as "combining resources at hand to apply new problems and opportunities". The concept of "patchwork" explains the "compromise" and re-examination of existing resources to improve their value and function. From the perspective of constructivism, it is not a resource dependence, but breaks through the traditional thinking pattern of resource use, re-deconstructs and integrates resources, and develops new uses and new rules of use of existing resources [6]. Such resource innovation helps enterprises to achieve "out of thin air" and reduce the possibility of strategic control loss, so as to effectively respond to new opportunities and challenges and achieve strategic goals.

Strategic flexibility is a dynamic ability of enterprises to adapt to environmental changes. Based on strategic options, Sanchez proposed from the perspective of resource-based theory that strategic flexibility not only includes the existing resource flexibility of the enterprise, but also includes the flexibility of the enterprise to effectively coordinate resources in necessary situations [7]. The former refers to the scope of application, conversion time and conversion cost of the existing resources of the enterprise, while the latter refers to the ability of the enterprise to configure, optimize and reintegrate the existing resource chain, which is usually measured by whether the enterprise can flexibly use resources, stop or reverse the existing resource commitment and successfully cope with environmental change. Therefore, it is a worthwhile starting point to study the impact of entrepreneurial patchwork on strategic flexibility from a resource-driven perspective.

Based on the above theories, from the strategic point of view of resources, "patchwork" activities, such as resource identification and resource integration, can solve the problem of lack of innovative resources and provide operable specific approaches to enrich strategic flexible resources, so as to improve the flexibility between the elements of resources themselves and the flexibility of coordinated use of resources. Therefore, entrepreneurial patchwork has an important impact on the strategic flexibility of enterprises, and the following hypotheses are proposed in this paper:

H1: Entrepreneurial patchwork has a positive effect on corporate strategic flexibility.

2.2.The mediating effect of knowledge absorption ability

From the perspective of dynamic capabilities, resource integration ability, opportunity identification ability and market response speed are key factors for enterprises to maintain competitive advantages in a highly complex and changeable environment (Barreto, 2010) [8]. Absorptive capacity can improve the utilization efficiency of resources, help enterprises seize the control right of strategic decision, establish the portfolio of strategic choice, and form dynamic competitive advantage. Knowledge is a kind of strategic resource, and absorptive capacity helps enterprises identify opportunities, utilize opportunities and integrate resources, which is one of the essential and important capabilities of organizational innovation (Timmons, 1999) [9]. When there is an imbalance between innovation opportunities and scarce resources, knowledge absorption capacity can play a key role in avoiding the threat of imbalance (Huang Ruyi, 2018) [10]. Absorptive capacity focuses on the expansion of the depth and breadth of knowledge. The utilization of existing resources, the integration of internal and external new knowledge, and the organizational learning process all link knowledge absorption with enterprise innovation capability, helping to understand the important methods to improve enterprise innovation performance (Schweisfurth and Raasch, 2018) [11].

From the perspective of improving the resource acquisition of new enterprises, entrepreneurial patchwork has a significant positive effect on the acquisition of operational resources and knowledge resources in the embryonic stage and growth stage of new enterprises (Aushova, 2020) [12], and the acquisition of these resources is closely related to knowledge absorption capacity. Resource acquisition enriches the stock of

enterprise resources and knowledge base, and the amount of existing resources and accumulated experience determines the strength of knowledge absorption capacity (Xu Qian, 2020) [13]. In other words, entrepreneurial patchwork can broaden the use of existing resources, and the integration of resources is conducive to enterprises to acquire more new knowledge and enhance the ability to identify, utilize, transform and absorb knowledge. Therefore, the following hypotheses are proposed in this paper:

H2: Entrepreneurial patchwork has a positive effect on knowledge absorption capacity.

How does knowledge absorptive capacity affect strategic flexibility? Firstly, by absorbing and transforming knowledge, enterprises can increase the use of existing resources and improve the efficiency of resource use, thus reducing the time and cost of resource conversion. Secondly, according to the resource-based view and the logical framework of dynamic capability theory, absorptive capability helps to identify opportunities and perceive changes in external dynamic environment, improve the ability of resource integration and resource reconstruction, so as to formulate better product competition strategies to cope with the complexity of the environment. Therefore, the following hypotheses are proposed in this paper:

H3: Knowledge absorption ability has a positive effect on corporate strategic flexibility.

Based on the above assumptions, the study suggests that knowledge absorption plays a mediating role in the process of entrepreneurial patchwork affecting strategic flexibility. Especially for those enterprises that hope to achieve technological innovation, entrepreneurial patchwork can improve the knowledge absorption capacity of enterprises. Other scholars take knowledge as a part of technological innovation and discuss a similar view of the mediating role of knowledge absorptive capacity. They believe that opportunity identification, information acquisition, resource integration and other predisposing factors play a role through knowledge absorptive capacity, thus promoting knowledge accumulation and strategic decision-making in innovation activities. Based on this, the following viewpoints are put forward:

H4: Knowledge absorption capacity plays a mediating role in the relationship between entrepreneurial patchwork and corporate strategic flexibility.

2.3.The moderating effects of environmental dynamics

Environmental dynamics is an important factor affecting the flexibility of enterprise strategy. The environment is highly dynamic when the external market environment is complex and the future trend is difficult to predict. High environmental dynamism can broaden enterprises' vision and promote enterprises to allocate resources and knowledge in a timely manner, thus improving strategic flexibility. When an enterprise is in a situation of high environmental dynamics, the market environment changes greatly and the product and technology update speed is fast, the enterprise has to improve the absorption capacity of internal and external knowledge resources, otherwise, the essential knowledge resources will lose their original value. The dynamic and complexity of the environment can ensure that enterprises avoid falling into cognitive inertia during the period of strategic evaluation, and the complex mode can improve the screening and absorption capacity of new knowledge, thus enhancing strategic flexibility [14]. This paper proposes the following hypotheses:

H5a: Environmental dynamics has a positive moderating effect on the relationship between knowledge absorptive capacity and firm strategic flexibility.

Based on the above analysis, if environmental dynamics can positively regulate the relationship between knowledge absorption capacity and firm strategic flexibility, then the impact of resources and knowledge acquired from entrepreneurial patchwork activities on firm strategic flexibility can also be moderated by environmental dynamics, thus showing a certain mediating effect. Based on this, the following hypotheses are proposed:

H5b: Environmental dynamics positively moderates the mediating effect of knowledge absorption on entrepreneurial patchwork and firm strategic flexibility.

Based on the assumptions in this article, the conceptual model is shown in Figure 1.

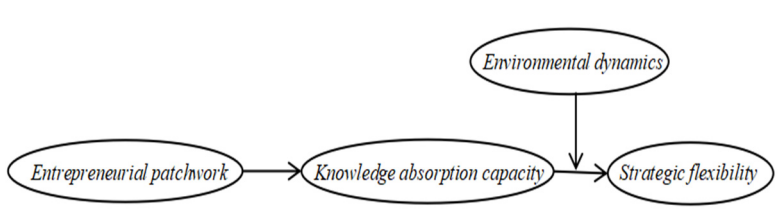

Figure 1 Conceptual model diagram

3. STUDY DESIGN

3.1.Data sources and samples

This study mainly adopts the form of questionnaire to obtain data, and takes China's innovative and entrepreneurial enterprises as the survey objects. These sample enterprises include Beijing, Shenzhen, Ningbo, Shanghai and Xi 'an and other cities, mainly covering technological innovative enterprises of chemical materials, new energy, electronic communication and software development. Formal investigation questionnaire distributed on a large scale, adopt a variety of ways, such as field distribution and network distributed to the enterprise managers and the main member of the out 300 questionnaires, and recycling. A total of 247 questionnaires were collected, 193 valid questionnaires were retained after eliminating the questionnaires lacking regularity and variables, with effective recovery of 64.3%.

3.2.Variable measurement

Likert-5-point scale was used to investigate the specific items of variable measurement. SPSS 24.0, Amos 23.0 and STATA 15.0 were used for data processing and empirical analysis. (1) Entrepreneurship patchwork refers to the research results of Senyard (2014) and adopts six questions for measurement [15]. (2) According to Schweisfurth, knowledge absorption capacity is measured from four aspects: knowledge acquisition, knowledge digestion, knowledge transformation and knowledge application [16]. (3) Strategic flexibility Refers to the resource flexibility and capacity flexibility scale items of Sanchez, Yuan Li and Wang Tienan [17]. This scale contains 7 items in total. (4) Environmental dynamics With reference to the scale of Jansen et al. [18], with a total of five items. (5) Control variables: firm nature, firm age and firm size as control variables.

4. THE EMPIRICAL ANALYSIS

4.1.Reliability and validity analysis

Before data analysis, this paper first tested the reliability and validity of the scale. The reliability analysis results of entrepreneurial patchwork, knowledge absorptive capacity, strategic flexibility and environmental dynamics are as follows: Cronbach's α of entrepreneurial patchwork, knowledge absorption, strategic flexibility and environmental dynamics are all greater than 0.7. Note The questionnaire has good internal consistency.

TABLE 1 RELIABILITY ANALYSIS

Variable	Measurement	Cronbach's α
EP	6	0.762
KAC	4	0.904
SF	7	0.741
ED	5	0.871

For structural validity analysis, SPSS24.0 was used for exploratory factor analysis. The overall KMO value of the scale was 0.807, and the Bartlett sphericity test p value of the scale was 0.000, indicating that the scale data were suitable for factor analysis. Amos23.0 was used for confirmative factor analysis, and the measurement results showed that χ^2/ DF =2.876 (< 3.0), CFI=0.95 (> 0.9), GFI=0.93 (> 0.9), RMSEA=0.062 (< 0.08), all of the above indicators were within the standard value range, indicating that the model fitting degree was very good.

4.2.Descriptive statistics and correlation analysis

Table 2 shows the descriptive statistical results. The average values of strategic flexibility and environmental dynamism are 4.11 and 4.05 respectively, both greater than 4, indicating that the sample enterprises have high environmental dynamism and strong strategic flexibility, and can cope with the complex and dynamic external environment. Overall, there are no outliers in the descriptive statistical results.

TABLE 2 MEAN VALUES, STANDARD DEVIATIONS AND CORRELATION COEFFICIENTS OF SAMPLE VARIABLES

Variable	Average	1	2	3	4	VIF
EP	3.94	1				2.35
KAC	3.87	0.532**	1			4.76
SF	4.11	0.621**	0.654**	1		1.98
ED	4.05	0.494**	0.611**	0.580**	1	3.25

4.3.Regression analysis

Stata 15.0 software was used in this paper to conduct regression analysis using multivariate hierarchical regression method. The model regression results are shown in Table 3. Model (1) tested the relationship between entrepreneurial patchwork and knowledge absorptive capacity, in which the entrepreneurial patchwork coefficient (β= 0.634, P < 0.01) was significantly positive, R2 was 0.537, and increased (△R2 =0.523) compared with the basic model (5). Therefore, assuming H2 passed the verification. Model (2) tests the relationship between entrepreneurial patchwork and strategic flexibility, in which the entrepreneurial patchwork coefficient is significantly positive (β= 0.457, P < 0.01), R2 is 0.574, so hypothesis H1 passes the verification.

TABLE 3 MAIN EFFECT, MEDIATING EFFECT AND MODERATING EFFECT TESTS

Variable	KAC	SF			
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)
FN	.045*	.064*	.042*	.044*	.051**
FA	.051**	.023	.064*	.103**	.031
FS	.073**	.082**	.077**	-.035	.089**
EP	.634***	.457***	.421**		
KAC			.546***		
ED				.318**	
KACxED				.243*	
▵R2	.537	.574	.589	.612	.014
F (***)	18.34**	21.53**	26.49**	24.36**	17.31**

Note: N = 193; ***, **, * represent P<0.01, P<0.05, P<0.1 significance level respectively.

The regression results of model (3) with the addition of mediating variables showed that entrepreneurial integration (β = 0.421, P < 0.05) and knowledge absorption ability (β = 0.546, P < 0.01), and decreased (△β=0.213) compared with the entrepreneurial patchwork coefficient of model (1). Therefore, knowledge absorption capacity plays a partial mediating role in the relationship between resource patchwork and strategic flexibility. It is assumed that H3 and H4 have passed the verification.

Model (4) verifies the interaction coefficient between knowledge absorptive capacity and environmental dynamics is significantly positive (β = 0.243, P < 0.1), R2 is 0.612, which is 0.598 higher than that of basic model (5). Therefore, hypothesis H5a is verified.

The adjusted mediation effect calculated based on the bootstrapping method is shown in Table 5. The data show that when the environment is highly dynamic, the indirect effect of knowledge absorption ability between entrepreneurial Patchwork and enterprise strategic flexibility (indirect effect) (β = 0.15, P < 0.05), but when the environmental dynamics is low, the indirect effect (β = 0.04, NS) was not significant, and there was no difference between high situation and low situation (Δβ = 0.11, P < 0.1), that is, the mediating effect of regulation is established, and it is assumed that H5B is supported.

TABLE 4 TEST OF MODERATED MEDIATING EFFECTS

ED	EP→KAC→SF				
	The First Stage	The First Stage	The Direct Effect	The Indirect Effect	The total effect
Low	.21*	.17*	.23*	.04	.27**
High	.34**	.39**	.36**	.15**	.40**
The Differences	.13*	.22**	.13*	.11*	.21**

Note: ***, ** and * represent P<0.01, P<0.05 and P<0.1 significance level respectively.

5. THE RESEARCH CONCLUSION

Based on the resource patchwork theory and dynamic capability theory, this paper examines the relationship between entrepreneurial patchwork, knowledge absorptive capacity and firm strategic flexibility, and the moderating effect of environmental dynamics, using the survey data of innovative SMEs. The research results of this paper have important management implications, which are mainly reflected in: (1) enterprise should excavate the value of the existing resources and potential value, to strengthen the integration of resources, utilization, improve the applicability of existing resources and the conversion efficiency, to promote and develop the knowledge absorptive capacity, complete the absorption of knowledge conversion through organizational learning and the commercial value of effective output, so as to improve enterprise's strategic resource flexibility to cope with the external environment change. (2) the relationship between the environmental dynamics and strategic flexibility directly reflects the strategy of the flexible adaptation mechanism, the adaptive mechanism for managers in making strategic decisions, should also consider the enterprise internal factors and external factors of market environment, so as to better promote enterprise strategy flexibility ability to cope with the complex market competition.

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