The Linear and Nonlinear Relationship between Diversification, Redundant Resources and Company Performance: Based on the Fixed effect Model and Threshold Model

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Abstract—China has entered the stage of constructing new normal economy, which provides a new strategy room for companies. In such a context, more companies begin to pay attention to their own market, and also regard diversification as an important chance to develop. Based on the empirical data of listed manufacturing companies in Shenzhen-Shanghai stock market from 2010 to 2019, this paper firstly used the balanced panel two-way fixed effect model to explore the linear influence between industry diversification and performance, making static analysis on the various types of redundant resources within the companies in the diversification and performance relationship of the regulatory role. Secondly regression model was applied to analyze the nonlinear relationship between diversification and company performance, using redundant resources as the threshold variable. Finally, the dynamical influence of redundant resources on the relationship between diversification and company performance has been discussed.

Keywords- Diversification; Redundant Resources; Company Performance; Fixed Effect Model; Threshold Model

1 INTRODUCTION

As China's macroeconomic environment has undergone tremendous changes, companies have gradually turned to the competition based on quality and differentiation. In order to seek new economic growth points and allocate resources more rationally and effectively, more and more companies choose to operate their companies diversified. However, the current growth of production capacity in various market segments is slowing down, and the structural contradictions such as accumulated overcapacity and debt problems in companies have become increasingly prominent, which poses a challenge to the diversified operation of companies. Therefore, it is particularly important to study the relationship between diversification and performance.

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Diversification has always been the key content of corporate management research. As foreign companies have developed more diversified and currently, the number of "refocusing" companies has increased, the research on diversification has a downward trend, but domestic companies have been late in the development of diversification, which it is still an important research area. In the research on the factors that affect diversification, redundant resources are an important factor that cannot be ignored in the micro-environment of companies. Under the current economic situation, manufacturing companies have a serious phenomenon of irrational structure and overcapacity, which reflects the problem of redundant resources and their allocations. Diversification is a common form of resources allocation, the degree of diversification is related to the stock of redundant resources within the enterprise. Therefore, this paper aims to explore the relationship between diversification and company performance by introducing the important influencing factor-redundant resources, and figure out the role of redundant resources in diversification decision-making and execution.

Based on the study on the relationship between diversification and company performance, this paper adds different types of redundant resources regulatory variables, and collects the balanced panel data of 189 listed manufacturing companies in Shanghai-Shenzhen stock market from 2010 to 2019, and uses stata14 for the analysis of relevant statistics. Firstly, verify the impact of diversification on company performance from a linear perspective. Secondly, study whether diversification will aggravate or alleviate the relationship between diversification and company performance after adding redundant resources of regulatory variables, and further analyze whether the overall redundant resources exist a certain threshold, which makes the relationship between diversification and company performance non-linear changes. Finally, explore ways to improve company performance from the perspective of internal resource factors and implementing diversification rationally.

2 LITERATURE REVIEW AND RESEARCH HYPOTHESIS

2.1 Diversification and company performance

Currently, researchers mainly focus on the business model, degrees, and the type of diversification when studying the impact of diversification on performance. Su and Sang (2015) found that secondary stakeholders play an intermediary role in the relationship between product diversification and company performance, and this moderating effect is more significant in related diversification [1]. Wu Xia and Lian Jun (2013) held that the increase in diversification degree can reduce cash holdings, which can not only diversify certain risks, but also conduct internal financing and reduce the constraints of corporate financing [2]; Li Xiaoyang, Wei Zhangdi and Zhao Honglei (2018) used the threshold regression model to prove that the size of the company has a significant impact on the premium effect of diversification when it exceeds the threshold of threshold size[3]. However, most scholars still support the theory of discounting on diversification. Khanna and Yafeh (2007) considered that diversified business groups which composed of legally independent companies in different industries are very common in emerging markets. From the perspective of welfare, it may sometimes be "models", and sometimes "parasites"[4]. Jin Cuo (2017), in his research on diversification and company performance, found that under the current institutional

environment, there is a significant negative correlation between diversification and company performance, especially in unrelated diversification[5]; Su Rujie and Chang Yuhao (2019) discussed the negative impact of diversification on company performance in the context of the new normal of China's economic, and further studied dynamic capabilities as a moderating variable quantity[6].

Diversification is a relatively complex, durable and strategic investment and management method. Due to the diversification has the characteristics of continuity, dynamics, complexity, the need for higher management coordination capabilities and strong internal integration, there will bring many theoretical problems such as principal-agent problems, resource dependence and integration, information acquisition and communication, and organizational structure in the process of business decision-making and execution, which in turn makes the impact of this operation on company performance both positive and negative. Although diversification has many advantages such as making full use of unused resources, diversifying risks, finding new economic growth, the agency problems, management costs, cross-subsidies, and inefficiency of resource dispersion brought by diversification cannot be ignored. At this stage, economic development pays more attention to improving quality and efficiency, the competition among manufacturing companies is becoming increasingly fierce, the difficulty of diversification is greatly increased, and the negative impact it brings will increase. Therefore, this paper proposes the following hypotheses:

Hypothesis 1: Diversification will be significantly detrimental to the improvement of company performance. That is, the higher level diversification there is, the lower company performance there will be.

2.2 Redundant resources and company performance

Redundant resources are defined as the differences that the organization has and the resources that the organization needs. Following the theoretical logic of "resource-action-performance", redundant resources certainly play an important role in the relationship between diversification and company performance. Li and Pan (2018) believe that product market competition and financing constraints strengthen the negative relationship between redundant resources, and the greater the deviation between actual organizational redundant architecture and standard redundant architecture, the greater the impact on business performance will be [7]. Zhou and Yang (2018) proposed that the lag phase of unabsorbed redundant resources has a significant negative impact on the current financial performance and studied the inhibition of redundant resources by the improvement of financial performance [8].

Current researches rarely relate redundant resources, diversification with company performance. Generally speaking, redundant resources can avoid various risks and provide buffers for companies. At the same time, companies should be avoided from having too many resources beyond their utilization potential and management ability. As different types of redundant resources have different utilization difficulties and influence function, they have different influence paths on diversified business. Therefore, they should be analyzed in terms of specific resources. This paper classifies the redundant resources into three categories: available redundant, recoverable redundant and potential redundant.

Among them, the available redundant resources with good cushioning, not only enhance the confidence of management to make more active and reasonably investment, and carry out the new strategic action, also make the principal-agent problems of management and owner relatively moderate. Furthermore, internal departments compete for resource will be reduced, which will improve management efficiency, reduce the coordination costs, put resources in the place where most needed, and effectively alleviate the diversification discount effect. The concealment and flexibility of recoverable redundant resources was low, which is difficult to effectively transform and use. When the companies carry out diversified management, the existence of recoverable redundant resources is particularly important. As a result of the existence of diversification, all kinds of costs which have been drawn into the organizations will reduce unit cost of the products. Potential redundant is the resources which are obtained from external environment. Increase of those resources leads to the agent problem in enterprise. The discount effect of diversification is due to the fact that the management takes diversification as a speculative behavior to expand investment and blindly expands into different industries. The agency problem is an important negative factor, and the potential redundant resources make the agency problem more serious. Therefore, this paper proposes the following hypotheses:

Hypothesis 2: The available redundant resources will significantly negatively regulate the relationship between diversification and performance and alleviate the negative impact of diversified discount.

Hypothesis 3: Recoverable redundant resources will negatively regulate the relationship between diversification and performance and alleviate the negative impact of diversification on company performance.

Hypothesis 4: Potential redundant resources will significantly positively regulate the relationship between diversification and performance, making the discount impact of diversification more serious.

2.3 The non-linear impact of diversified operation on company performance

In view of the previous detailed analysis of the linear relationship between diversification and company performance and the influence of various redundant resources on the relationship between diversification and performance, the further question is whether the linear relationship between diversification and performance will change non-linearly because of the special and common existence of redundant resources. Does the buffer function of redundant resources play a role in any inventory? Is there a certain threshold value or interval that can alleviate the diversification discount more effectively? On this basis, considering the dynamic effect of micro-influencing factors of slack resources, the influence of diversification on company performance may have a non-linear relationship. This paper mainly introduces the threshold model to discuss the above problems with the help of Hansen [9]. In the balanced panel threshold model, strict statistical reasoning method is adopted to realize threshold parameter estimation, and redundant resources are taken as threshold variables to further explore the correlation between diversification and company performance.

When the enterprise’s redundant resources are less than a certain threshold, because redundant resources are not rich, this type of resource does not play a role in alleviating diversified

discounts and reducing internal competition. When the enterprise's redundant resources exceed a certain threshold, the increase in the stock of redundant resources makes this type of resource gradually exert its advantages. In this paper, the average value of the three categories of redundant resources mentioned above is used as the measurement index of the overall redundant resource Slack. The total assets of the enterprise return on total assets (ROA) is the explained variable, Herfindahl index(HI)is the explanatory variable, and Slack is the threshold variable. Based on this, the following assumptions are made:

Hypothesis 5: When the redundant resources are less than a certain threshold, diversification has a significant negative impact on performance; when the redundant resources are greater than a certain threshold, the negative impact of diversification on company performance will be weakened.

3 RESEARCH DESIGN

3.1 Sample selection and data sources

This paper adopts manufacturing listed companies in the Shanghai and Shenzhen stock market as the samples, and the involved years are 2010-2019, given the relatively mature development of China's manufacturing industry and a higher degree of diversification than other industries. The sample data comes from Guotaian CSMAR database, CCER Xenophon database and Juchao Information Network. In order to reduce research errors, the sample selection process adopts the following criteria: Firstly, the sample company needs to carry out industry diversification business during 2010-2019, and publicly disclose relevant data. Secondly, the samples that were ST and *ST during the period 2010-2019 are excluded. Finally, samples with severely incomplete data are excluded, while samples with a small amount of data missing are completed and outliers are eliminated. A total of 1772 effective balanced panel samples were obtained. Data processing is mainly done through related software such as Stata.14.

3.2 Variable definition

The variable system consists of the explained variable, explanatory variables, regulatory variables, and control variables as table 1.

Table 1 Variable setting and definition method

Variable setting			Variable definition method
Explained variable	ROA	Return On Total Assets	Net profit at the end of the period / Total assets
Explanatory variables	HI	Herfindahl Index	$H = 1 - \sum_{i=1}^{n} P_i^2$
Regulatory variables	SA	Available redundant resources	Quick assets / Current liabilities - Industry median
	SP	Recoverable redundant resources	(sales expense + Management fees)/ Sales revenue - Industry

			median
	SR	Potential redundant resources	Assets and liabilities - Industry median
Control variable	SIZE	Enterprise size	Logarithm of total assets at the end of the period
	AGE	Enterprise age	The number of years from the establishment of the company to each year (2010-2019
	GROW	Growth	Operating income growth rate
	RETA	Operating efficiency	Turnover rate of total assets
	CR	Equity concentration	The largest shareholder's shareholding ratio
	MC	Market competition	Refer to Fan Gang et al. 2018 China's marketization index by province [11]
	CS	Nature of ownership	State-owned enterprises assign a value of 1, otherwise it is 0
	EXP	Capital density	Net fixed assets / Total assets

1) Explained variable. Regarding the measurement indicators of corporate performance, scholars have their own research indicators. In order to eliminate the possibility of profit manipulation and human interference in financial indicators reasonably and effectively, ROA is selected.

2) Explanatory variables. Berry (1979) put forwards the Herfindahl index, which measures the degree of corporate diversification [10]. Based on the diversified indicators researched by most scholars, the revised Herfindahl indicator is calculated based on the ratio of the income of each industry to the total income. This paper uses entropy index as a substitute index for robustness test. For the revised HI, it is calculated according to the following formula:

$$H = 1 - \sum_{i=1}^{n} P_i^2 \tag{1}$$

Among them, p_i is the ratio of the i-th main business income to the total income of the main business. The HI value is between 0-1.

3) Regulatory variables. This paper adopts the industry median of relevant financial indicators to adjust the corresponding financial indicators to eliminate the differences between different sub-industries. Quick ratio is used to measure the available redundant resources. The recoverable redundant resources are measure by the ratio of the sum of sales expenses and management expenses to sales revenue. The indicator used for potential redundancy is the asset-liability ratio.

4) Control variables. The control variables involve operating capability (total asset turnover rate), growth capability (operating income growth rate), ownership structure (shareholding ratio of the largest shareholder), company attributes (scale, age), market competition, capital density, nature of ownership and other indicators.

3.3 Model building

In order to test the Hypothesis 1, Model 1 is built as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 HI_{i,t} + \beta_2 AGE_{i,t} + \beta_3 CS_{i,t} + \beta_4 GROW_{i,t} + \beta_5 EXP_{i,t} + \beta_6 MC_{i,t} + \beta_7 SIZE_{i,t} + \beta_8 CR_{i,t} + \beta_9 RETA_{i,t} + \varepsilon_{i,t} \quad (2)$$

In order to test the Hypothesis 2-4, Model 2 is built as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 HI_{i,t} + \beta_2 SLACK_{i,t} + \beta_3 HI_{i,t} \times SLACK_{i,t} + \beta_4 AGE_{i,t} + \beta_5 CS_{i,t} + \beta_6 GROW_{i,t} + \beta_7 EXP_{i,t} + \beta_8 MC_{i,t} + \beta_9 SIZE_{i,t} + \beta_{10} CR_{i,t} + \beta_{11} RETA_{i,t} + \varepsilon_{i,t} \quad (3)$$

In order to test the Hypothesis 5, Threshold Model 3 is built as follows:

$$ROA_{i,t} = \xi_i + \mu_1 HI_{i,t} I(Slack \le \gamma_1) + \mu_2 HI_{i,t} I(Slack_{i,t} > \gamma_1) + \sum Control_{i,t} + \varepsilon_{i,t} \quad (4)$$

4 EMPIRICAL RESULTS AND ANALYSIS

4.1 Descriptive statistics

Table 2 lists the descriptive statistical results for all variables. The ROA of the sample companies in the past 9 years is about 4.1%, the maximum is 34%, and the minimum is -38.6%. This means when ROA is used as an indicator to measure the company performance, the overall performance level of the sample companies is low and the difference is large. From the perspective of the degree of diversification, the average diversification of the sample companies is about 48%, the maximum is 86.1%, and the minimum is -21.1%, indicating that the overall diversification level of companies is at a medium level. The difference in diversification is obvious. At the same time, its standard deviation is 0.157, reflecting the large difference in the diversification of the sample companies. From the perspective of the enterprise's SA, the average value of the redundant resources is 138.8%, and the maximum value is 14.662, indicating that the overall available redundant resources of companies are mostly at a medium level, with a standard deviation of 1.435, reflecting the large differences in the available redundant resources among the sample companies. From the perspective of enterprise's SP, the average value is 15.3%, and the maximum value is 91.3%, indicating that the overall recoverable redundant resources of companies are less, and the standard deviation is 0.101. The difference between sample companies is small. From the perspective of enterprise's SR of companies, the average value is 46.9%, the maximum value is 96.3%, and the standard deviation is 0.184, which indicates that the overall external debt level of the sample companies is quite different.

Table 2 Sample descriptive statistics

Variable	Mean	Maximum	Minimum	Standard Deviation
ROA	0.041	0.339	-0.386	0.053

HI	0.480	0.861	-0.211	0.157
SA	1.388	14.662	0.132	1.435
SP	0.153	0.913	0.008	0.101
SR	0.469	0.963	0.029	0.184
GROW	0.188	43.885	-0.777	1.141
SIZE	22.369	26.582	19.462	1.171
CR	0.338	0.852	0.034	0.149
RETA	0.772	7.871	0.037	0.669
AGE	2.735	3.611	0	0.416
CS	0.2	1	0	0.396
EXP	0.249	0.789	0.009	0.145
MC	7.865	10	2.33	1.853
N	1772	1772	1772	1772

4.2 Linear regression analysis

The model 1 in Table 2 performs a two-way fixed effect regression on the relationship between the degree of diversification and company performance. From the results, the regression coefficient of diversification is -0.026, and the negative correlation between diversification and corporate performance is significant at the 1% level. It indicates that diversification HI has a discount effect on company performance. The conclusion of Hypothesis 1 is verified, which is consistent with the theoretical conclusions of the agency problem of the principal-agent theory, management cost theory, and resource limitation. The main reasons are as follows:

1) Analysis of internal environment. First, due to the diversification of the company, the number of industries involved has increased, making the business of the company more complex. The internal organizational structure is also more complicated, the management difficulty is increased, and the principal-agent problem will be more serious. Second, there are certain differences in the allocation of production factors, the organization structure, and the resources and capabilities of management in different industries. Increased differences will make the enterprise operation process more complicated. And transaction expenditures, coordination costs, and management costs will increase. As a result, the scope and depth of management will deepen, and the efficiency of enterprise operations will be reduced. Third, diversification will have internal cross-subsidy. According to the inefficiency theory of the internal capital market, the existence of cross-subsidy has caused a waste of corporate resources to a certain extent.

2) Analysis of the external environment. First, in the current era of fierce economic competition, the supply capacity of traditional industries has greatly exceeded demand. And structural conflicts and contradictions such as overcapacity and debt problems have become prominent. With the slowdown of macroeconomic growth, competition in the development of various industries has become increasingly fierce. It is difficult for diversified companies to gain advantage opportunities in many industries to promote performance improvement while maintaining their original industries. Second, from the perspective of the accumulation and mitigation of economic risks, along with the downward adjustment of economic growth, various types of hidden risks have gradually become apparent. At the same time, the costs caused by the inefficient governance of diversified companies such as agency costs and internal struggles have become prominent. Diversification has harmed company performance.

Third, with the strengthening of infrastructure connectivity and the proliferation of new technologies, new products, new forms and new business models, new requirements have been put forward for innovative investment and financing methods. While opportunities exist, risks will also increase, which also poses a huge challenge to diversified operations. If companies don't fully analyze market opportunities and risks before embarking on diversified operations and making blind investments, the discount effect of diversification will be increased. Companies must be good at grasping the direction of investment and eliminating investment barriers in order to make diversified investment play a positive role in economic development.

In Model 2 of Table 3, the coefficient of the interaction term between available redundant resources and diversification passed the significance test at the 5% level, and the correlation coefficient is negative, which indicates when companies have high available redundant resources, the negative relationship between diversification and company performance will be significantly weakened. Companies with high available redundant resources will have strong buffer characteristics in the process of diversification, which makes their company performance gradually improved. This verifies the conclusion of Hypothesis 3. The coefficient of the interaction term between recoverable redundant resources and diversification is negative, the correlation coefficient between the two is -0.336, and the 1% significance test is passed. This shows that when companies have high recoverable redundant resources, the negative relationship between diversification and company performance will be weakened due to the integration and innovation of recoverable redundant resources. The conclusion of Hypothesis 5 is verified. The coefficient of the interaction term between potential redundancy and diversification is 0.104, and there is a significant positive correlation at the 1% level. That is, the negative relationship between the diversification and company performance is positively regulated by potential redundant resources. Companies with more potential redundant resources perform worse in the process of diversification, which intensifies the discount effect of diversification. The conclusion of hypothesis 7 is verified.

Table 3 The main effect model and the regression results of the adjustment effect (two-way fixed)

Variable	Model 1	Moderating Effect-Model 2		
		SA	SP	SR
EXP	-0.070*** (-5.33)	-0.065*** (-4.88)	-0.066*** (-5.12)	-0.067*** (-5.34)
MC	-0.011*** (-4.11)	-0.011*** (-4.15)	-0.011*** (-4.01)	-0.010*** (-3.92)
SIZE	0.004 (1.21)	0.004 (1.41)	0.001 (0.41)	0.012*** (3.86)
AGE	-0.043*** (-4.67)	-0.041*** (-4.38)	-0.038*** (-4.20)	-0.023*** (-2.56)
CR	0.052*** (2.87)	0.055*** (3.04)	0.054*** (3.04)	0.068*** (3.92)
RETA	0.026*** (5.89)	0.027*** (6.09)	0.021*** (4.80)	0.028*** (6.83)
CS	-0.005 (-0.73)	-0.004 (-0.64)	-0.002 (-0.39)	-0.004 (-0.73)
GROW	0.003*** (3.35)	0.003*** (3.29)	0.002*** (3.05)	0.002*** (2.87)

YEAR	control	control	control	control
HI	-0.026*** (-3.02)	-0.020** (-2.28)	-0.018** (-2.12)	-0.024*** (-2.87)
SA		0.008*** (2.83)		
HI*SA		-0.012** (-2.26)		
SP			0.050 (1.13)	
HI*SP			-0.336*** (-3.89)	
SR				-0.165*** (-6.82)
HI*SR				0.104*** (2.28)
R^2	0.1535	0.1583	0.1706	0.2129
F	15.94***	14.78***	16.16***	21.25***

Note: ***,**,* The symbols mean that data is significant at 1%, 5%, and 10% level respectively; () t value is in parenthesis.

4.3 Threshold regression analysis

First, whether there is a threshold model for diversification and company performance is determined. If so, determine whether it is a single-threshold model, a double-threshold model, or a three-threshold model. In this paper, “Self-sampling (Bootstrap)” is used to test whether there is a threshold in Model 3. The results are shown in Table 3. Under the assumption that there is no threshold value, the F statistic is 14.24 and the p-value is 0.0767. Therefore, the null hypothesis is rejected at the 10% significance level, which indicates there is a threshold of 0.4607. Then the double-threshold test is carried out. Since the p-value of the double-threshold is 0.1767, which fails the significance test, there is no double threshold. The threshold model proposed in this paper is applicable to the single-threshold model, and hypothesis 5 is initially verified.

Table 4 Threshold number test

		F value	P value	10% threshold	5% threshold	1% threshold
Model Three	Single threshold	14.24*	0.0767	12.8553	16.1137	21.3846
	Double threshold	9.71	0.1767	11.6752	14.1318	22.4029

Note: The p value and threshold value are obtained by using the Bootstrap through repeated sampling 300 times

Table 4 and Figure 1 list the single threshold estimates and 95% confidence interval of Model 3. The threshold is 0.4607. The 95% confidence interval of the threshold estimate is the interval formed by all likelihood ratio statistics LR less than the threshold value 7.35 at the 5% significance level (the dotted line in the figure). Figure 1 shows the single threshold estimate and 95% confidence interval.

Table 5 Estimated value of single threshold and 95% confidence interval

Model Three	Threshold estimate	95% confidence interval
	0.4607	[0.4472,0.4640]

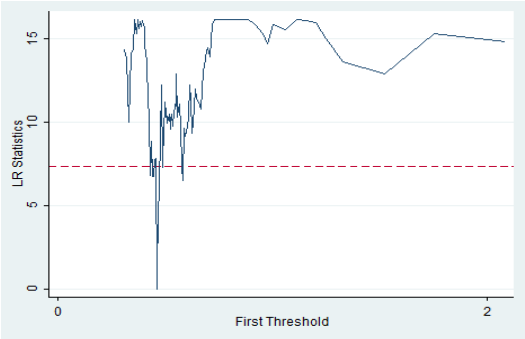

Figure 1 Estimated value and confidence space of a single threshold variable

After determining the single threshold value, this paper makes regression analysis on the threshold model, and the regression results are shown in Table 6. It can be seen from the threshold regression results that there is a non-linear relationship between diversification and corporate performance, which validates Hypothesis 5.

The single threshold value for the first stage is 0.4607. When the company's slack resources are less than 0.4607, diversified operations has a significant negative impact on company performance. The main reasons for this phenomenon are: on the one side, the low stock of slack resources and the lack of abundance of resources indicate to a certain extent that the production capacity of the enterprise is low, and the diversification of companies with low production capacity will aggravate the discount effect; on the other side, too low or no slack resources will increase the risk of companies when the economic fluctuates and cannot play a buffer role in the process of diversification; the most important thing is that the lack of slack resources will lead to fierce competition for resources within the enterprise, increased management difficulty, and high coordination costs, which intensifies the agency problems and interest conflicts. In the case of a high degree of diversification, serious agency problems, management costs, inefficiencies in the internal capital market and cross-subsidy problems will arise, making the benefits of diversification lower than the cost, which did not bring about performance improvement.

Table 6 Regression results of threshold model

Variable	Model Three
EXP	-0.065*** (-3.56)

MC	-0.008*** (-2.61)
SIZE	0.007 (1.56)
AGE	-0.023** (-2.12)
CR	0.047 (1.48)
RETA	0.025*** (3.72)
CS	-0.005 (-0.58)
GROW	0.003** (2.86)
HI (Slack≤γ_1)	-0.042*** (-3.31)
HI (Slack>γ_1)	-0.019* (-1.69)
R^2	0.1369
F	14.22***

Note: ***, **, *are significant at 1%, 5%, and 10% respectively; ()is the t value

In the second stage, when the company's slack resource ratio is greater than the threshold of 0.4607, the coefficient value of diversification on the company's performance becomes smaller, the negative impact weakens, and it passes the test at a significant level of 10%. Every 1 unit change in diversification will cause a reverse change of 0.019 units in the company's performance. At first, when the company's slack resources reach a certain proportion, with the improvement of the company's management capabilities and management experience, such resources will be fully utilized, and the company's various slack resources will be optimally allocated and transferred between production departments. In the diversified operation, the utilization of resources has also been improved and the allocation of resources has been optimized. Second, slack resources will play their role as a buffer to the greatest extent, adapting to changes in the organizational environment, creating a good development environment for the organization, alleviating the interest conflict between management and owners to a certain extent, easing agency problems, reducing management costs, and helping diversified operations to give full play to their advantages. Finally, slack resources will also promote enterprise innovation activities through integration and innovation, which can not only create new income, but also provide high-quality resource support for the diversified operation of the enterprise, reduce the negative discount effect of diversification, and gradually play a positive role.

5 RESEARCH CONCLUSIONS AND RECOMMENDATIONS

Based on the relevant data of manufacturing listed companies in Shanghai and Shenzhen stock market from 2010 to 2019, this paper analyzes the impact of diversified operations on corporate performance from linear and non-linear perspectives, studies the moderating effect of specific slack resources on diversified operations and performance, and further explores the moderating effect of the relationship and whether there is a threshold for slack resources make the relationship between diversified operations and performance have non-linear changes. The main conclusions are as follows:

1) Specialization is better than diversification. The slowdown in macroeconomic growth and the beginning of the De-overcapacity stage have forced companies to confront the challenges of shrinking market, rising financing costs and intensified industry competition, which is not conducive to diversification to produce economies of scope and scale effects.

2) Different types of slack resources will play different roles in the operation of the organization. The more abundant the available and recoverable slack resources, the more likely it is for the company to cultivate internally or obtain the corresponding capabilities and resources from the outside, negatively regulating the diversification discount problem. On the contrary, potential slack resources aggravate the discount effect brought by diversification.

3) When the slack resources are less than a certain amount, the protective effect of the buffer is not played, and the diversified discount effect is serious. Only when the slack resources are maintained above a certain amount, can they be flexibly configured to meet the resources required for the operation of various departments. It provides sufficient resource protection for diversification, so as to weaken the influence of diversification discounts.

This paper recommends:

1) Focus on the main business to maintain and improve its core competitiveness and diversify cautiously. Empirical research shows that the diversification of manufacturing companies has a significant negative impact on their performance. Since the manufacturing industry has experienced years of development and development, it is now in a state of saturation, and diversification has become an opportunity for development. However, the structural contradictions of the manufacturing industry are prominent and it is difficult to obtain the advantages of diversified operations.

2) Strengthen resources management of the companies. The management of the companies should make specific analysis based on the specific characteristics of the resource, and use its strengths to the greatest extent and avoid its shortcomings. Specifically, they need to maximize the use of available resources, increase the conversion and utilization of recoverable slack resources, and reduce the proportion of potential slack resources as much as possible.

3) The slack resources should reach a certain threshold, and then give full play to the role of its buffer. When the number of slack resources is small, such as lower than 0.4607, the slack resources do not play a role in buffer protection, which increases the management cost of diversified operations relying on resource support, and the phenomenon of cross-subsidy by internal departments is serious. When the slack resources are greater than a certain amount, the impact of diversification discounts will be reduced. It is recommended that companies

save a certain amount of slack resources, which should be maintained at least above 0.4607 in order to effectively and fully utilize resource advantages to provide resource support for diversified operations and promote diversification to play a premium role.

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