

Research on the Impact of Diversified Operation on Organizational Resilience

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Abstract: Organizational resilience is a key factor for the longevity of an organization. In the face of a major public health emergency, it is worth studying the approaches to improve the organizational resilience of enterprises. Based on the principal-agent theory and resource allocation theory, this article deeply analyzed the process and mechanism of diversified operation affecting organizational resilience in the context of the COVID-19 pandemic. The results show that diversified operation has a significant negative impact on its resistance dimension of organizational resilience while has no significant effect on the resilience dimension. Furthermore, the negative influence of diversification on organizational resilience is only significant in non-state-owned enterprises.

Keywords: Principal-agent theory; Resource allocation theory; Diversified operation; Organizational resilience

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1. Introduction

At the end of 2019, the sudden outbreak of COVID-19 brought serious and persistent impact on the world economy, which increased the downward pressure on China's economy. In this context, the key to stimulate the vitality of enterprises lies in improving their resilience which helps them respond quickly to emergencies, survive adversity, and even achieve transcendental growth. The concept of resilience comes primarily from the discipline of psychology^[1]. Lengnick-Hall et al.^[2] defined organizational resilience as the ability to quickly understand a situation and make a specific response. DesJardine et al.^[3,4] argued that organizational resilience was an important index with two levels to measure the ability of a firm to recover and surpass its original state after a blow. The more resilient a company is, the more likely it is to survive, adapt, recover and thrive in the face of unexpected catastrophic events^[5,6]. Therefore, the research on organizational resilience has important practical significance.

Scholars have investigated the influence of human resource system^[7], market expansion and governance level^[8], corporate social responsibility^[9], social trust^[10] and other factors on organizational resilience and the methods to improve it from different perspectives. In recent years, diversified operation has provided increasing evidence to explain the development of organizations, and more and more scholars have paid attention to it. Numerous studies have indicated that diversified operation is conducive to the improvement of enterprises' risk coping ability. At present, few scholars have explored whether diversified operation will strengthen or weaken the resistance and resilience of enterprises under the impact of major public health emergencies. Compared with the extant literature, the innovation of this paper lies in the following three aspects. First, using principal-agent theory and resource allocation theory, this paper makes an empirical study on the influence of diversified operation on organizational resilience, which further

enriches the existing research results. Second, this paper examines the organizational resilience of the selected listed companies during the COVID-19 epidemic. Third, the author studies the resistance dimension and resilience dimension of organizational resilience separately, and draws the conclusion that diversified operation has different effects on these two aspects, which supplements the research methods of organizational resilience.

2. Theory and hypotheses

In the field of enterprise diversification, there have long been two views on the economic performance of diversification: “premium view” and “discount view.” In particular, under the background of COVID-19 epidemic, diversified operation can generate a series of hidden market risks, which will cause a negative impact on firms. According to the principal-agent theory, the problem of multiple agents generally exists in companies with high degree of diversification, where conflicts between shareholders and the management are more serious. Meanwhile, there are obvious defects in the internal information transmission, because of more complex organizational levels and longer management chains. Moreover, resource allocation of these corporates is scattered so that management is hard. In the early stage of COVID-19 epidemic, even if the top managers are sensitive to the changes in the external environment and make strategic adjustments accordingly, the enterprise cannot respond quickly through the multi-layer information transmission and execution mechanism. Consequently, diversified operation can weaken the ability of firms to survive, recover and achieve leapfrog development under the epidemic situation. From the perspective of resource allocation theory, whether an enterprise diversifies by increasing investment in other industries or acquiring other firms by means of equity or cash, etc., it all depends on the resources the enterprise owns. Therefore, the deepening degree of diversification will reduce the cash flow and increase the debt level of the corporate. In conclusion, there is a certain negative correlation between enterprise diversification and organizational resilience. The hypotheses are proposed as follow:

- (1) **Hypothesis 1 (H1):** Diversified operation can significantly reduce an enterprise’s organizational resistance to emergencies.
- (2) **Hypothesis 2 (H2):** Diversified operation can significantly reduce an enterprise’s resilience from a crisis.

3. Research design

3.1. Sample and method

All Chinese A-share listed companies from 2019 to 2020 were selected as the research objects. In order to improve the validity of the data, the following categories of companies were excluded according to the rules below:

- (1) Listed financial and insurance companies.
- (2) Special treatment (ST) and *ST listed companies.
- (3) Companies whose major financial data are seriously incomplete.
- (4) Companies with seriously abnormal data values.

Finally, 3249 samples were identified after the screening, whose observations were mainly from the China Stock Market and Accounting Research (CSMAR) and Eastmoney.com.

3.2. Measurement of variables

3.2.1. Dependent variable: Organizational resilience

Due to the differences in research perspectives among scholars, the measurement method of organizational

resilience has not reached a common consensus. Some scholars ^[9] studied organizational resilience from a long-term perspective and tested it through organizational growth, financial fluctuations and other dimensions. In addition, from the perspectives of resistance and resilience, DesJardine et al. ^[3] investigated the impact of social and environmental practices on organizational resilience in the context of short-term financial crisis. Considering that the research background of this study is the COVID-19 epidemic, it is more appropriate to refer to the method of DesJardine et al. ^[3] to explore the impact of diversified operation on organizational resilience.

Organizational resistance is measured by the severity and duration of loss. The severity of loss is represented by the absolute percentage decline of stock price in 12 months after the COVID-19 outbreak. The greater the loss, the weaker the resistance and the lower the organizational resilience of the enterprise when facing external shocks. As for the duration of loss, it is expressed by the time taken for the daily closing share price to decline from the highest point to the lowest point.

Organizational resilience is evaluated by the degree of recovery, which is represented by a dummy variable. It is equal to 1 if the daily closing price of the enterprise returns to the highest level of the year before the COVID-19 outbreak by 23 January 2021, or 0 if not. Preliminary analysis of the collected data revealed that nearly half of the selected companies had failed to recover to the peak daily closing price by January 23, 2021, which meant that measuring organizational resilience from the perspective of recovery time would cause a large sample loss. Therefore, only the degree of recovery was remained as the indicator of resilience in this paper.

3.2.2. Independent variable: Diversified operation

Diversified operation can be measured by income entropy index (EI) in regression analysis and heterogeneity analysis. Meanwhile, the Hirschman-Herfindahl index (HHI) is applied for evaluation in the robustness test. The higher the income entropy index is, the more industries an enterprise covers and the larger the proportion of sales of different industries in its total sales is, which implies a higher degree of enterprise diversification. HHI is a negative indicator, and the higher its value is, the higher the industry concentration and the lower the degree of diversification of the firm.

3.2.3. Control variables

On basis of existing literature and related theories, the following variables affecting organizational resilience are controlled, including firm size, age of listing, fixed assets, intangible assets, financial leverage, operating efficiency, controlling shareholders, profitability and board independence.

4. Results

4.1. Regression analysis

As shown in **Table 1**, diversified operation and the degree of loss have a regression coefficient of -0.014 with a level of confidence of 95%. The corresponding coefficient of duration of loss is 27.375, which is significantly positive at the level of 1%. It is implied that the deepening of diversification leads to the decline in the resistance level of organizational resilience when other conditions remain unchanged. Thus, hypothesis 1 has been verified. As for hypothesis 2, the results show that the regression coefficient between diversified operation and the degree of recovery is insignificant, indicating that the degree of diversification has no significant effect on the change of the resilience level.

Meanwhile, according to the analysis results, it is also found that the regression coefficients of the firm size, fixed assets, intangible assets, operating efficiency, profitability and listing years on the degree of loss are 0.021, 0.085, 0.125, 0.028, 0.117 and 0.002, respectively, so the resistance level will be improved with the increase of them. Showing the inhibitory effect on the resistance level of organizational resilience, the

coefficient of the financial leverage is -0.084, which is significantly negative at the level of 1%. In terms of the effect on the degree of recovery, operation efficiency and profitability have positive coefficients while financial leverage, controlling shareholders and listing year have negative ones, all of which are significant at a confidence interval of 99%.

Table 1. Regression estimates of diversified operation on organizational resilience

	Loss	Loss_time	Recovery_dum
EI	-0.014** (-2.290)	27.375*** -3.614	-0.033 (-1.628)
Controls	-	-	-
Adj R-squared	0.0685	0.0291	0.0282

Note: *p<0.10, ** p<0.05, *** p<0.01

4.2. Heterogeneity test

Considering that the degree of organizational resilience affected by diversification may differ between state-owned enterprises and non-state-owned enterprises, this study divided the samples according to the nature of equity to further investigate the relationship between causal variables. The results of heterogeneity analysis are shown in **Table 2**.

The results of heterogeneity analysis indicate that diversification has a greater negative impact on organizational resilience in non-state-owned enterprises, which may be due to the fact that non-state-owned enterprises have fewer channels to obtain government support than state-owned enterprises. Under the influence of COVID-19 epidemic, non-state-owned enterprises with a high degree of diversified operation find it more difficult to resist the risk and survive the crisis.

Table 2. Results of heterogeneity test

	Non-state	State-owned	Non-state	State-owned	Non-state	State-owned
	Loss	Loss	Loss_time	Loss_time	Recovery_dum	Recovery_dum
EI	-0.023*** (-2.804)	0 (-0.055)	24.949** -2.554	30.008** -2.531	-0.007 (-0.260)	-0.070** (-2.101)
Controls	-	-	-	-	-	-
Adj R-squared	0.0604	0.0876	0.0375	0.0226	0.0131	0.0499

Note: *p<0.10, ** p<0.05, *** p<0.01

4.3. Endogeneity check

There may exist two questions about the conclusion of this paper. First, whether diversified operation affects organizational resilience, or the improvement of organizational resilience reduces the level of diversification. Second, whether there are missing key variables that affect both the degree of diversification and organizational resilience, which leads to the above research results. For the first question, the author took the current level of organizational resilience as the dependent variable, and made the regression analysis with the values of diversification and control variables lagging one period. As for the second question, the change value of the current value of all variables and their value of the lagging one period are used to conduct a regression analysis, in order to eliminate the influence of key variables that are not potentially considered. The results of endogeneity test are consistent with the results of main test, implying that the conclusion is still valid after further alleviation of endogeneity problem. Due to space limitation,

the table for results of endogeneity check is not displayed.

Disclosure statement

The author declares no conflict of interest.

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