

# Firm Internationalization, Diversification and Corporate Value: *Empirical Evidence From Listed Chinese Corporations*

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# Abstract

Theoretical analysis shows that there are many differences between internationalization and diversification; therefore they have different impacts on corporate value. Based on a sample of Chinese manufacturing listed corporations in 2009-2011, the empirical results show that there is statistically significant positive relationship between internationalization and corporate value, while diversification is statistically negatively related. Further analysis shows that diversification will positively moderate the relationship between internationalization and corporate value. These conclusions are important to the managers and investors.

**Key words:** Internationalization; Diversification; Multinational corporations; Corporate value

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### INTRODUCTION

Since Rumelt's (1974) seminal study, many scholars did a lot of research on diversification. Overall, these studies suggested the existence of the diversification discount. In contrast, the research on internationalization was few.<sup>1</sup> With the development of global economic integration, the corporate's internationalization level is increasing day by day. This applies not only to the developed country's firms, but also for the emerging market economy country's firms. For Chinese corporations, the strategy of internationalization is becoming increasingly important. Theoretical arguments suggest that internationalization is likely to improve the value of the company, but could also reduce the value of the company. So far, empirical evidence on the value effect of internationalization is limited, and the conclusions are inconsistent. Also, the current empirical research on the internationalization was mainly based on samples from the developed country (especially USA) firms. However, emerging market economies provide a different economic and institutional

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<sup>&</sup>lt;sup>T</sup> Internationalization refers to the enterprise direct investment outside the home country and thus controls the assets and activities (production, management, marketing or R&D etc.). At present there is not a unified terminology about internationalization. Internationalization, international diversification, global diversification, international expansion is frequently used in the literature, and its essence refers to the same corporate behavior. The internationalization of enterprises and multinational enterprises exist difference in degree, as with the usual practice in the literature, this paper does not distinguish between them. Various definitions of internationalization please refer to Annavarjula and Beldona, (2000).

environment for the corporate internationalization strategy. So we could make completely different conclusions using samples of firms from different emerging market economies. The domestic market scale will also affect the relationship between internationalization and firm value. The small size of one domestic market will restrict the development of enterprises, so internationalization may enhance the value of the company. Compared with other emerging market economies. China's domestic market scale is much bigger. The impact of Chinese corporations' internationalization strategy on corporate value may also be obviously different to other emerging market economy countries; however at present there is no research to explore the value effect of Chinese corporations' internationalization strategy. Therefore, in this paper we took Chinese listed corporations as samples to investigate the influence of internationalization on the value of the company. At the same time, the development of world economic integration will change the relative benefits and costs of the internationalization and diversification. Opening up new markets will increase the feasibility of internationalization, but fierce international competition makes focusing on core business of the enterprise. Therefore, there may be a trade-off between the internationalization and diversification, which has different meanings to corporate value. We also did the comparative analysis of value effect of internationalization and diversification.

# **1. LITERATURE REVIEW**

#### 1.1 The Internationalization Literature

The measure of corporate value commonly used in empirical research is Tobin's Q and the excess value method that Berger and Ofek (1995) proposed. Errunza and Senbet (1981) found that there was a positive relationship between the excess value and the degree of internationalization using a sample of US multinational corporations,<sup>2</sup> and in a period of greater barriers to capital flows, the relationship was stronger. Morck and Yeung (1991) found that the degree of internationalization was positively correlated with Tobin's O. But Denis et al. (2002) found that, on average, internationalization would significantly reduce the excess value of the company and that the magnitude reduced was consistent with diversification; at the same time, the reduction of the degree of internationalization will increase the excess value. Kim and Mathur (2008) came to conclusions consistent with Denis's et al. views using a larger sample. Christophe and Pleiffer (2002) found that internationalization had a negative impact on the corporate value, but not a statistically significant one. Fauver et al. (2004) found that for US companies, internationalization would lead to a significant discount, while this phenomenon does not exist for German and British companies. They thought this showed that international revenue was relatively smaller for US companies, or US companies had to take greater agency costs and coordination costs when they expanded internationally. Daukas and Kan (2006) showed that internationalization would reduce the equity value, but increase the value of debt. Overall, internationalization would not destroy value. Santos et al. (2008) studied the effects of cross-border mergers and acquisitions. The results showed that, in general, although a large number of studies have shown that the domestic industrial mergers and acquisitions led to a discount, international mergers and acquisitions did not destroy the value. Gande et al. (2009) found Tobin's Q increased the degree of internationalization. Eckert et al. (2010) found that internationalization was positively correlated with Tobin's O for German companies.

Overall, the present empirical evidence on the value effect of internationalization is not consistent. However, the researchers obtained a negative correlation between the internationalization and firm value if the researchers used Berger and Ofek's (1995) excess value method to calculate firm value. The method that Berger and Ofek (1995) proposed to calculate excess value needs three steps: first, calculating the estimated value of enterprises; second, the actual value divided by the estimated value; third, the results of the previous step logarithmic. If the excess value is greater than 0, it indicates the diversification premium; if the excess value is less than 0, it shows the diversification discount. They use the equity market value and the book value of the debt to compute the actual value. A source of diversification benefits can reduce the risk of firm Risk reduction is beneficial to the creditor. If diversification can reduce the risk of debt, the book value and market value of debt will be inevitably inconsistent. Therefore, Mansi and Reeb (2002) thought that the book value of debt would underestimate the excess value of diversification. They found that, if researchers used market value of debt, then the enterprise would not show the diversification discount. Using the method that Mansi and Reeb (2002) proposed, Daukas and Kan (2006) found, if the book value of the debt is used, internationalization is negatively related to the value of the company. If the market value of the debt is used, internationalization does not damage the value of the company. Compared with the excess value method that Berger and Ofek (1995) proposed, the calculation of Tobin's Q is relatively less sensitive to the market value and book value.

<sup>&</sup>lt;sup>2</sup> The calculation method of excess value that they used was different with the excess value Berger and Ofek (1995) proposed, and it was calculated as the total enterprise value (market value of equity plus book value of debt), then minus the book value of asset, and then divided by sales revenue. Excess value below referd to the excess value method Berger and Ofek (1995) proposed.

#### **1.2 The Diversification Literature**

The study on the relationship between diversification and the value of the company can refer to Martin and Sayrak (2003) literature review. On the whole, the empirical studies of most western scholars showed that diversification would lead to the loss of corporate value. But these findings were based on the mature capital market. External market environment is an important factor to affect the relationship between diversification and firm value. As an emerging market economy country, China is in the process of economic transition. The market is not developed, the system is not perfect, the environment is uncertain, and it will change the effect of diversification on firm value. Many domestic scholars also explored the relationship between diversification and corporate value in Chinese political and economic environment.

Most studies showed that there existed diversification discount phenomenon in Chinese listed Corporations. Li and Zhu (2006) found that diversified mergers and acquisitions made the shareholders' wealth loss of 6.5%-9.6% within 1-3 years after the acquisition. Their research was supported by Hong, Liu and Xiong (2006), they also found that diversification M & A would make the shareholders of acquirer 7.2% of loss in 1-3 years. Han, Zhu and Wang (2006) found that in listed Chinese Corporations the reason for the diversification discount was the agency problem between owners and managers. Wei (2007) found that diversification would reduce the value of the firm, the discount ratio of 5%-21%. Lu (2009) found the reason of diversification discount was government intervention in Chinese listed Corporations, higher level of government intervention made diversification discount more serious. Liu (2009) also showed that diversification reduces the value of the company.

In summary, on the whole, the existing research showed that diversification was negatively related to corporate value.

# 2. THEORETICAL ANALYSIS

An important reason for the existence of the diversification discount phenomenon is that the enterprises are based on the agency problem between owners and managers in adopting the diversification strategy. Under the separation of ownership and management, as well as the conditions of highly dispersed ownership, managers may pursue their own individual utility maximization. Hay and Morris (1991) pointed out that the utility function of managers included income, power, status, prestige and security, which are directly or indirectly related to the scale of the enterprise. Diversification could rapidly increase the size of enterprises, therefore, the agency cost between owners and managers led to the diversification discount. The same conclusion applies to internationalization. However, based on the following reasons, the value effect of internationalization is significantly different from diversification.

First, the influence of internationalization and diversification on firm innovation is different. Strategic control helps the managers to engage in risk-taking behavior, and financial control will inhibit the risktaking behavior of managers. In specialized enterprises, extensive exchanges between senior managers as well as familiarity with the business make the enterprise to adopt strategic control. However, when the enterprises continue to diversify, due to the problems of control range, limited rationality and information asymmetry, senior managers have to exert more and more financial control. This can lead to risk aversion for branch managers, which will inhibit business innovation activities. The existing empirical studies also showed that diversification will reduce corporate R&D expenditure, such as Baysinger and Hoskisson (1989), Li (2012), etc.. While the internationalization strategy can provide a greater market with different demand characteristics, this potential can bring higher returns for corporate innovation, thereby reducing the risk of R&D investment. Therefore, international enterprises have the incentive to innovate. Especially in the modern economy, technological progress occurs more and more quickly, which requires the enterprise to quickly take advantage of the results of R&D to earn profits. Compared with multinational corporations, domestic companies need more time to recover the initial R&D investment before technological obsolescence, so by only operating in the domestic market the company is likely to lack motivation for innovative activities. At the same time, the global knowledge-based economy makes the enterprise's long-term competitive advantage mainly in knowledge. Internationalization also can make the enterprise learn from more diverse environments, and integrate the scattered knowledge in all regions of the world to build up a whole new competitive advantage. For these reasons, internationalization will promote innovation; Hitt, Hoskisson and Kim (1997) proved this point. Taking into account the promotion of innovation on corporate value,<sup>3</sup> different effects of internationalization and diversification on firm innovation make the influence on corporate value different.

Second, the influence of internationalization and diversification on firm risk is different. Risk reduction is one of the most frequently mentioned reasons for enterprises to adopt an internationalization or diversification strategy. However, the current research showed that internationalization and diversification had different effects on corporate risk. Rugman (1976) and Wan (1998) found that internationalization could reduce business risk. Kim, Hwang and Burgers (1993), as well

<sup>&</sup>lt;sup>3</sup> Research on the relationship between innovation and the value of the company can refer to Hall (2000) for a comprehensive literature review.

as Goldberg and Heflin (1995) found that an increase in the degree of internationalization would reduce corporate systemic risk. At present, scholars haven't studied the effect of the internationalization strategy on firm risk for listed Chinese corporations. Only individual scholars have studied the effect of diversification on firm risk; Wei and Sun (2008) as well as Hu and Li (2010) have found that diversification positively related with corporate systematic risk and negatively related with operation risk. The risk reduction effect of diversification has different meanings to the risk reduction effect of internationalization. Taking the market risk as an example, even if diversification can reduce the market risk (which is not necessarily beneficial to investors, because this risk can be spread out through the diversified portfolio of individual investors), investment allocation in various industries will not be restricted. However, in the international market, investment allocation between countries will face a lot of barriers because of the transaction costs, tax differences, exchange rate risk and control of capital flows; more importantly, high information cost of foreign securities, the international financial market is highly imperfect. In this case, the risk reduction effect of internationalization can not be replaced by an international diversified portfolio of individual investors, which may be beneficial to investors. Therefore, from the risk perspective, the value effects of internationalization and diversification are also different.

Third, the influence of internationalization and diversification on corporate growth is different. Corporate growth rate is one of the factors that influence the price of the stock. Hitt, Hoskisson and Ireland (1994) found that narrowing the scope of the industry is accompanied with the trend of internationalization. In our sample, we also found this trend. Thus, the impact of internationalization and diversification on firm growth is also different.

Based on the reasons mentioned above, we speculate that internationalization and diversification strategies have different influences on corporate value: internationalization is positively related to corporate value, and diversification is negatively related to corporate value.

# 3. VARIABLES AND SAMPLES

#### 3.1 Variables and Measurement

#### **3.1.1 Measurement of the Value of the Company**

Tobin's Q is defined as the ratio of the market value of the company and the replacement cost of the corporate assets. In this paper, we use the method that Chung and Pruitt (1994) proposed to calculate Tobin's Q. A simple formula to measure the Tobin's Q is:

Where MVE is the market value of common stock, PS is the liquidation value of preferred stock, DEBT is the book value of corporate debt, and TA is the book value

of total assets. Because the formula only requires basic stock price and financial information, and the calculation is simple, Equation (1) obtained a large number of applications.

#### 3.1.2 Measurement of Diversification

In this paper, we used the method of dummy variable to measure internationalization and diversification. If the business involves more than two countries, it is considered an international company; if the business involves two or more double-digit industries, it is considered a diversified company. At the same time, we used the counting method to measure the degree of internationalization and diversification.

#### 3.1.3 Control Variables

Existing research suggests that many factors will have an influence on corporate value, such as the scale of enterprise, innovation, capital structure, and corporate governance. Therefore, in the multiple regression analysis, we included these variables as control variables. In this paper, we adopted the natural logarithm of total assets as the measurement index of corporate scale. Industrial organization theories show that innovation is an important determinant of firm value, and we adopted the ratio of R&D expenditure to sales as a proxy for innovation. Similarly, the capital structure will have an impact on corporate value, and we used the total debt/total assets to measure capital structure. Corporate investment opportunities in the same industry may also be very different, so we used the ratio of capital expenditure to sales to control investment opportunities in corporate level. The literature on corporate governance has indicated that the ownership structure and management ownership will affect the corporate value, and also affect the formulation of the corporate strategy, so we also included the proportion of the largest shareholder and the ratio of management shareholding as control variables. Obviously, the corporate profitability is directly related to the value of the company, so the return on sales as a measure of profitability index was included in the regression analysis, which is calculated as the EBIT/total income. In this paper, to control industry effect, we adopted industry dummy variables.

#### 3.2 Samples

We selected the 2009-2011 listed Chinese manufacturing corporations as the initial research samples, and eliminated samples according to the following principles: (a) due to whether the financial data of the new listed companies was not accurate enough, and the fluctuation of its stock price was abnormal, so we chose the companies which were listed before the end of 2007; (b) removed the companies issuing B shares or H shares at the same time; (c) excluding the companies with missing data; (d) excluding sales of less than Y 100 million. After the elimination, we finally obtain balanced panel data of 622 listed corporations in 2009-2011, a total of 1,866

observations. From 2009 to 2011, the companies adopting internationalization strategies respectively numbered 92, 102, 121; the companies adopting diversification strategies respectively numbered 192, 179, and 181. In this paper, the data about the internationalization, diversification and R&D expenditure come from the annual financial statements of listing corporations; other data come from the GTA CSMAR database.

# 4. EMPIRICAL RESULTS

#### 4.1 Summary Statistics

In Table 1, we present summary statistics for the variables used in our analysis. According to whether the enterprises adopted the internationalization strategy, we divided all the enterprises into domestic corporations and multinational corporations; according to whether the enterprise adopted the diversification strategy, we divided the samples into diversified corporations and specialized corporations. As can be seen from Table 1, Tobin's Q of multinational corporations is lower than the domestic corporations and is statistically significant; Tobin's Q of diversified corporations is also lower than the specialized corporations. But the size of multinational corporations is significantly greater than the domestic corporations. Because the size and corporate value is usually negatively correlated, the lower Tobin's Q of multinational corporations is likely to come from the larger scale of multinational corporations. R&D intensity is rd. The R&D intensity of multinational corporations is significantly higher than that of domestic corporations, and the R&D intensity of diversified corporations is significantly lower than that of specialized companies, which is consistent with our theoretical analysis. The capital structure of multinational corporations is not Tabla 1

| Table 1 |            |              |
|---------|------------|--------------|
| Summary | Statistics | of Variables |

statistically significant and different from the domestic companies, but the capital structure of diversified corporations is higher than that of domestic companies. Capex is the ratio of capital expenditure to sales, which is also sometimes used to measure the growth of enterprises. We found that the multinational corporation's capital expenditure ratio is significantly higher than that of the domestic companies, and the capital expenditure ratio of diversified companies is significantly lower than the specialized companies. Management is the proportion of management shareholding. We found that although multinational corporations were larger, the proportion of management shareholding of multinational corporations is significantly higher than that of the domestic companies, and the proportion of management shareholding of diversified corporations is significantly lower than the specialized companies. So the internationalization strategy may be less affected by the agency problem, which is conducive to the value of the company. First is the proportion of the largest shareholder. The proportion of the largest shareholder will also help alleviate the agency problem between owners and managers, but will bring big agency conflicts between shareholders and minority shareholders, so it has both positive and negative impacts on the value of the company. In the proportion of the largest shareholder, there is no difference between the multinational corporations and the domestic companies, and the proportion of the largest shareholder of the specialized companies is significantly higher than that of the diversified companies. ROS is the return on sales. The ROS of multinational corporations is significantly higher than that of domestic companies. On these different aspects, we can see that internationalization and diversification strategies have different effects on all aspects of the enterprise, so its impact on the corporate value will be different.

|              | All corporations   | Domestic<br>corporations | Multinational corporations | <i>P</i> value | Specialized corporations | Diversified<br>corporations | P value |
|--------------|--------------------|--------------------------|----------------------------|----------------|--------------------------|-----------------------------|---------|
| Tobin's Q    | 2.721<br>(3.713)   | 2.767<br>(3.988)         | 2.493<br>(2.305)           | 0.006          | 2.758<br>(3.063)         | 2.634<br>(5.258)            | 0.254   |
| Size         | 21.701<br>(1.203)  | 21.562<br>(1.014)        | 22.384<br>(1.578)          | 0.000          | 21.689<br>(1.272)        | 21.73<br>(1.04)             | 0.446   |
| rd           | 0.011<br>(0.0003)  | 0.01<br>(0.0003)         | 0.014<br>(0.0003)          | 0.0006         | 0.012<br>(0.0003)        | 0.008<br>(0.0002)           | 0.000   |
| TD           | 0.508<br>(0.047)   | 0.507<br>(0.05)          | 0.515<br>(0.035)           | 0.516          | 0.502<br>(0.047)         | 0.523<br>(0.048)            | 0.066   |
| Capex        | 0.062<br>(0.003)   | 0.06<br>(0.003)          | 0.068<br>(0.002)           | 0.013          | 0.064<br>(0.003)         | 0.057<br>(0.003)            | 0.009   |
| Mange        | 0.028<br>(0.008)   | 0.027<br>(0.008)         | 0.036<br>(0.009)           | 0.10           | 0.033<br>(0.01)          | 0.017<br>(0.05)             | 0.0001  |
| First        | 33.955<br>(202.88) | 33.99<br>(203.12)        | 33.77<br>(202.32)          | 0.803          | 34.529<br>(206.46)       | 32.588<br>(192.07)          | 0.006   |
| ROS          | 0.082<br>(0.08)    | 0.076<br>(0.094)         | 0.109<br>(0.009)           | 0.0006         | 0.077<br>(0.082)         | 0.094<br>(0.075)            | 0.231   |
| Observations | 1866               | 1551                     | 315                        |                | 1314                     | 552                         |         |

*Note.* Figures in the table are the mean, numbers in the parentheses are the standard errors, *P* value is two tailed test.

#### 4.2 Regression Analysis

We modeled corporate value as:

$$Q_{ii} = \beta_0 + \beta_1 \operatorname{int}_{ii} + \beta_2 \operatorname{div}_{ii} + \beta_3 \operatorname{rd}_{ii} + \beta_4 \operatorname{TD}_{ii} + \beta_5 \operatorname{size}_{ii} + \beta_6 \operatorname{first}_{ii} + \beta_7 \operatorname{mange}_{ii} + \beta_8 \operatorname{capex}_{ii} + \beta_9 \operatorname{ROS}_{ii} + \beta_{10} \operatorname{year} + \sum_{i=1}^8 \alpha_i \operatorname{Dum}_d + u_{ii} .$$

$$(2)$$

Here, int is the internationalization dummy, which is used as a proxy for the internationalization strategy; div is the diversification dummy, which is used as a proxy for the diversification strategy. Year is the annual dummy. Dum<sub>d</sub> is the industry dummies. In Table 2, we report the estimated coefficients and standard errors from the regression of Equation (2).

We adopt three regression methods: OLS, fixed effect and random effect of panel data. As can be seen from Table 2, the results are consistent based on three different methods. Here we use the OLS method to illustrate the results. Model 1 uses the dummy variables method to measure the level of internationalization and diversification, the results show that there is a significant positive relationship between internationalization and corporate value; and diversification and corporate value are negatively correlated, although not statistically significant. Model 2 uses the counting method to measure the level of internationalization and diversification. In Model 2, NC is the number of countries, and NI is the number of industries. The results further confirm the conclusion of Model 1, and a negative correlation between diversification and firm value is now statistically significant. This confirms our hypothesis.

# Table 2Regression Results

In terms of control variables, R&D intensity is positively related to the value of the company significantly. The size and capital structure are negatively related to the value of the company significantly. The largest shareholder equity ratio has a significantly positive effect on the corporate value. However, there is no statistically significant relationship between the management shareholding ratio and the value of the company, which may mean that the management shareholding ratio is lower in listed Chinese corporations. The capital expenditure ratio and return on sales are positively correlated with firm value, but not statistically significant.

In summary, the descriptive statistical analysis shows that internationalization and diversification are negatively related to corporate value, and statistically significant for internationalization. But including control variables in the regression, a negative correlation between internationalization and firm value has become a significant and positive correlation, and the negative correlation between diversification and firm value is now statistically significant. This shows that internationalization and diversification have different influences on corporate value.

|          | OLS                            |                                 | Fixed                           | effect                           | Rando                           | m effect                         |
|----------|--------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|
|          | Model 1                        | Model 2                         | Model 1                         | Model 2                          | Model 1                         | Model 2                          |
| Constant | 17.399 <sup>***</sup>          | 17.572***                       | 17.399 <sup>***</sup>           | 17.572 <sup>***</sup>            | 17.399 <sup>***</sup>           | 17.572 <sup>***</sup>            |
|          | (0.882)                        | (0.881)                         | (2.149)                         | (2.137)                          | (2.148)                         | (2.137)                          |
| nt       | 0.259 <sup>**</sup><br>(0.113) |                                 | 0.259 <sup>***</sup><br>(0.106) |                                  | 0.259 <sup>***</sup><br>(0.106) |                                  |
| liv      | -0.096<br>(0.088)              |                                 | -0.096<br>(0.088)               |                                  | -0.096<br>(0.088)               |                                  |
| NC       |                                | 0.091 <sup>***</sup><br>(0.033) |                                 | 0.091 <sup>***</sup><br>(0.024)  |                                 | 0.091 <sup>***</sup><br>(0.024)  |
| II       |                                | -0.079 <sup>*</sup><br>(0.042)  |                                 | -0.079 <sup>***</sup><br>(0.028) |                                 | -0.079 <sup>***</sup><br>(0.028) |
| d        | 5.616 <sup>**</sup>            | 5.792 <sup>**</sup>             | 5.616                           | 5.792                            | 5.616                           | 5.792                            |
|          | (2.568)                        | (2.559)                         | (3.787)                         | (3.73)                           | (3.786)                         | (3.73)                           |
| Ď        | -0.756***                      | -0.775 <sup>***</sup>           | -0.756                          | -0.775                           | -0.756                          | -0.775                           |
|          | (0.201)                        | (0.201)                         | (0.584)                         | (0.583)                          | (0.584)                         | (0.583)                          |
| ize      | -0.662***                      | -0.67***                        | -0.662***                       | -0.67 <sup>***</sup>             | -0.662***                       | -0.67***                         |
|          | (0.04)                         | (0.043)                         | (0.113)                         | (0.113)                          | (0.113)                         | (0.113)                          |
| First    | 0.008 <sup>***</sup>           | $0.008^{***}$                   | 0.008 <sup>***</sup>            | $0.008^{***}$                    | $0.008^{***}$                   | 0.008 <sup>***</sup>             |
|          | (0.003)                        | (0.003)                         | (0.003)                         | (0.003)                          | (0.003)                         | (0.003)                          |
| Mange    | 0.031                          | -0.007                          | 0.031                           | -0.007                           | 0.031                           | -0.007                           |
|          | (0.449)                        | (0.449)                         | (0.397)                         | (0.401)                          | (0.397)                         | (0.401)                          |
| Capex    | 0.178                          | 0.174                           | 0.178                           | 0.174                            | 0.178                           | 0.174                            |
|          | (0.731)                        | (0.73)                          | (0.612)                         | (0.603)                          | (0.612)                         | (0.603)                          |

To be continued

|                            | OLS                  |                      | Fixed            | effect              | Random effect    |                     |  |
|----------------------------|----------------------|----------------------|------------------|---------------------|------------------|---------------------|--|
|                            | Model 1              | Model 2              | Model 1          | Model 2             | Model 1          | Model 2             |  |
| ROS                        | 0.053 (0.148)        | 0.054<br>(0.148)     | 0.053<br>(0.878) | 0.054<br>(0.879)    | 0.053 (0.878)    | 0.054 (0.879)       |  |
| year                       | -0.329***<br>(0.049) | -0.331***<br>(0.049) | -0.369<br>(0.04) | -0.331***<br>(0.04) | -0.329<br>(0.04) | -0.331***<br>(0.04) |  |
| $R^2$                      | 0.232                | 0.234                | 0.232            | 0.234               | 0.232            | 0.234               |  |
| Adj- <i>R</i> <sup>2</sup> | 0.225                | 0.227                | 0.232            | 0.234               | 0.232            | 0.234               |  |
| F-statistic                | 31.08                | 31.41                | 549.89           | 555.68              | 19531            | 19737               |  |

#### Continued

Note. \*\*\*, \*\* and \* indicate significant level of 1%, 5% and 10%.

#### 4.3 Internationalization and Corporate Value: Moderating the Effect of Diversification

Many enterprises adopt both the internationalization strategy and the diversification strategy, so diversification may affect the relationship between internationalization and firm value. In the initial stage of internationalization, because firms are not familiar with the various aspects of the foreign markets, political, and cultural environment, they face the high cost of learning; at the same time, the low degree of internationalization makes the enterprises difficult to take advantage of the foreign markets. Especially for the specialized enterprises, the managers have no experience in managing internal diversity. They also cannot develop the right skills to manage information processing, and the existing organizational structure of the specialized enterprises cannot adapt to the internationalization strategy. However, diversification can make the enterprise to obtain the diversified management experience and lessons, and the organizational structure and internal incentive mechanism of diversified enterprises are more adaptable to the needs of the implementation of the internationalization strategy. Therefore, a significant positive relationship between internationalization and firm value is stronger in the diversified enterprises. Of course, as the international expansion continues, management and organizational learning will occur, the managers of the specialized enterprises will acquire the necessary skills, and will establish the appropriate organizational structure to effectively manage the international enterprises.

In order to investigate the regulatory effect of diversification on the relationship between internationalization and firm value, we divide the sample into the diversified enterprises and the specialized enterprises according to whether the enterprises adopted the diversification strategy, and then regression analysis was performed respectively. In 552 diversified companies, 80 companies adopted internationalization strategy; and 1,314 specialized enterprises, 235 companies adopted internationalization strategy.

Table 3 provides the regression results. In Table 3, Model 1 used dummy variables to measure internationalization. As can be seen from Model 1, a significantly positive relationship between internationalization and firm value exists only in the diversified enterprise; and in the specialized enterprises, internationalization and firm value are positively related, but not statistically significant, and the coefficient is much smaller. Model 2 used the counting method to measure the degree of internationalization, the results show that, whether in the diversified enterprises or in the specialized enterprises, a significantly positive correlation of internationalization and corporate value exists; but in an economic sense, relative to the specialized enterprises, the coefficient of internationalization is much greater in the diversified enterprises. These results indicate that, diversification will positively regulate the positive relation between internationalization and firm value.

| T | ab | ole | 3 |  |
|---|----|-----|---|--|
|   |    |     |   |  |

|          | Diversified companies |                |             |                   | Specialized companies |                   |             |                   |
|----------|-----------------------|----------------|-------------|-------------------|-----------------------|-------------------|-------------|-------------------|
|          | Model 1               |                | Model 2     |                   | Model 1               |                   | Model 2     |                   |
|          | Coefficient           | Standard error | Coefficient | Standard<br>error | Coefficient           | Standard<br>error | Coefficient | Standard<br>error |
| Constant | 26.768***             | 2.068          | 26.299***   | 2.061             | 14.067***             | 0.900             | 14.378***   | 0.899             |
| Dint     | 0.831***              | 0.264          |             |                   | 0.061                 | 0.115             |             |                   |
| NC       |                       |                | 0.208***    | 0.081             |                       |                   | $0.057^{*}$ | 0.033             |
| rd       | 0.419                 | 7.056          | 3.639       | 6.972             | 7.105***              | 2.492             | 7.045***    | 2.489             |
| TD       | 1.07***               | 0.431          | 1.018***    | 0.432             | -1.475****            | 0.212             | -1.494***   | 0.212             |

To be continued

|             | <b>Diversified companies</b> |                |             |                   | Specialized companies |                   |             |                   |
|-------------|------------------------------|----------------|-------------|-------------------|-----------------------|-------------------|-------------|-------------------|
|             | M                            | odel 1         | Model 2     |                   | Model 1               |                   | Model 2     |                   |
|             | Coefficient                  | Standard error | Coefficient | Standard<br>error | Coefficient           | Standard<br>error | Coefficient | Standard<br>error |
| Size        | -1.137***                    | 0.097          | -1.133***   | 0.099             | -0.49***              | 0.044             | -0.508****  | 0.044             |
| First       | 0.003                        | 0.007          | 0.003       | 0.007             | 0.008***              | 0.003             | 0.008***    | 0.003             |
| Mange       | -1.409                       | 1.317          | -1.349      | 1.32              | 0.349                 | 0.429             | 0.338       | 0.429             |
| Capex       | 0.795                        | 1.704          | 1.003       | 1.713             | 0.264                 | 0.738             | 0.257       | 0.737             |
| ROS         | 1.913***                     | 0.334          | 1.91***     | 0.335             | -0.712***             | 0.152             | -0.713****  | 0.152             |
| Year        | -0.281***                    | 0.105          | -0.277***   | 0.106             | -0.332***             | 0.051             | -0.332****  | 0.051             |
| $R^2$       | 0.267                        |                | 0.263       |                   | 0.30                  |                   | 0.301       |                   |
| $Adj-R^2$   | 0.244                        |                | 0.239       |                   | 0.291                 |                   | 0.292       |                   |
| F-statistic | 11.44                        |                | 11.19       |                   | 32.66                 |                   | 32.88       |                   |

#### Continued

# CONCLUSION

Theoretically, both internationalization and diversification have positive and negative impacts on firm value. But the internationalization is different to the diversification of many aspects, so both have different influences on corporate value. Taking listed Chinese manufacturing corporations as a sample, we found that there was a significant positive correlation between internationalization and firm value, but diversification was negatively related to corporate value. We further found that diversification will positively regulate the positive relation between internationalization and firm value. The reason may be that, facing all kinds of obstacles in the initial stage of the internationalization strategy, the accumulation of experiences and lessons in adopting the diversification strategy will help enterprises to overcome these barriers.

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