

The Effect of D&O Insurance on Company Values in the Chinese Stock Market

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Abstract: D&O insurance is considered an important risk management tool in protecting the interest of minor directors and investors of listed companies. Over the past years, D&O insurance has been studied various times. Two major hypotheses about its actual effect on company values are the encouragement hypothesis and opportunism hypothesis. Our study was based on the revision of the Chinese Security Law in 2019, and through the empirical analysis, we confirmed that the effect of D&O insurance on company values is positive. Further study revealed that this effect on high-risk level corporate is more significant. These findings provided empirical evidence on the importance of D&O insurance in Chinese stock market, and showed the need for further studying and popularization.

Keywords: D&O insurance, Chinese stock market, Company values, Risk management.

1. Introduction

As was proposed in the famous work of Berle and Means, The Modern Corporation and Private Property, the separation of managers' control and shareholders' ownership is an important characteristic in modern corporations. This corporate governance system leads to the agency problem, which improves the risk of willful conduct in company management and harms the interest of minor directors and investors. Therefore, various tools have been used in order to lower or evade this risk by listed companies, one of which is Directors' and officers' liability insurance.

Directors' and officers' liability insurance (also written directors and officers liability insurance; shorted as D&O insurance) in definition, is a kind of liability insurance payable to the directors and officers of a company, or to the organization itself, as reimbursement for losses or advancement of defense costs in the event an insured suffers such a loss as a result of a legal action brought for willful misconduct by directors and officers [1]. In many developed countries, such as the US and the UK, D&O insurance has attracted much attention and is recommended by security authorities, thus enjoying great prevalence. According to statistics, around 95% of the fortune 500 firms have bought D&O insurance. In contrast, its development in the Chinese market started much later.

After entering the Chinese market in 2002, D&O Insurance has attracted particularly increasing interest since December 28, 2019, when the Securities Law of the People's Republic of China was revised. The new Securities Law paid more attention to supervising and punishing the irregularities of the listed companies' officers, and the concrete measures include appending new chapters concerning customer protection and information disclosure, improving the fine against the illegal activities of listed companies, and determining the responsibilities. Under this circumstance, it's

natural for company officers and executives to cast more importance on optimizing the management of risk, especially the one on litigation risk. Therefore, targeting especially the litigation risk of directors and officers in listed companies, D&O insurance will undoubtedly become more influential in listed companies' risk management

D&O insurance takes effect when insured directors or executives are accused of wilful misconduct in the process of the company operation and are punished for compensation. On this condition, D&O will pay the compensation and other fees in the court process. There's no doubt that D&O insurance will lower the cost of company administrators' wilful misconduct. However, when it comes to D&O insurance's specific effect on company operation, there have been various theories. Acemoglu and Zilibotti found that since companies' risk-taking contributes to economic developments, the improvements in risk-taking help encourage companies to take full use of investment opportunities that otherwise would be missed just because of potential risk, thus further improving the economy [2]. It was also argued that D&O insurance takes an encouraging effect by acting as a safety net for companies' financial risk, which will encourage company decision-makers to accept a high level of risk to innovate and invest more, thus better improving the value of the company [3]. On the opposite, Lai pointed out that D&O insurance, safe enough as it seems to be, in fact, has an opportunism effect [4]. This refers to the theory that D&O insurance will reduce the cost of the wilful misconduct of company officers, which will lead them to ignore the potential risk of violating the law and having an excess pursuit of earning profit without considering the legal issues or financial risks, thus damaging the value of companies.

The problems in past research were apparent: Based on theoretical research evidence as reviewed above, the influence of D&O insurance on company value seems to be controversial. Meanwhile, whether the effect of D&O insurance varies on companies of different industries or risk levels was still questionable. Moreover, considering the fact that D&O insurance has not been much prevailed in China, compared with companies from the US and other developed countries, the existing empirical research evidence or event study evidence in this area based on the data of the Chinese market remains scarce. Last but not least, despite the phenomenon that the need for D&O insurance among Chinese listed companies has sharply increased after 2020, few researchers paid much attention to this period.

Therefore, it's necessary for us to investigate the specific effect of D&O insurance on the listed companies in China. The aim of the study is to figure out and testing whether D&O insurance has a positive or negative effect on the value of listed companies in China and to talk about its possible mechanism.

2. Literature Overview

The history of research on the effect of risk management on company value can be dated back to 1958 when Modigliani and Miller put forward the M&M theorem that under the condition of a perfect market and absence of taxes, bankruptcy costs, and asymmetric information, the market value of a company is independent of its capital structure. This means risk management strategy cannot influence company value. However, just as in the real world is, the assumption of a perfect market doesn't hold, and several factors, such as tax [5], financial crisis [6], and asymmetric information [7], are indeed influential on the value of the company. All these findings remind us of the importance of risk management strategies.

Traditional risk management strategies are classified into 2 sorts: the risk tools against traditional risk and the risk based on capital markets (like derivatives). Insurance belongs to the first sort, where it takes effects by lower certain kinds of costs: agency costs, bankruptcy costs, supervising costs, and taxes [8]. The lowered costs give a company more comparative advantage, thus positively influencing its value [15].

Relevant research also revealed that the importance of risk management is particularly noted when the government passes laws to improve the regulation of the capital market. One of the examples is the Sarbanes-Oxley Act (SOX Act) passed in 2002 in the US. This act paid significant attention to disclosure and built-in control, which sharply increased the litigation risk of listed companies [9]. And during this period, the fee of D&O insurance also doubled, which showed the strong need for this risk management tool.

However, although the importance of D&O insurance in risk management has been proven, there still exists much debate on its realistic effect, where the two opposite hypotheses can be concluded as “encouragement” and “opportunism”.

The encouragement effect means D&O insurance lowered the total risk level, encourage the company to invest more in innovative areas without worrying too much about financial affairs, and finally contribute to the development of company value. Moreover, before underwriting, the insurance company will have a full investigation into the important factors in the company background, such as risk level and management conduct, which will force managers and directors to be more prudent during this period [10].

In contrast, the latter hypothesis emphasized that D&O insurance, by undertaking the economic loss of willful misconduct of company officers, reduces the effect of laws and regulations and induces moral risks, like over-investment or ineffective investment [11]. And the higher risk of misconduct will further have a negative effect on company value. Another influential mechanism is the adverse selection problem. For example, a study found that if the conflict between dominant directors and minor directors is more serious, it will be more possible for the company to purchase D&O insurance, which indicates that companies with a potential crisis are more likely to buy D&O insurance. Under this circumstance, it will be hard for D&O insurance to take on effect [12].

In conclusion, amongst all the relevant literature, there exist two opposite hypotheses: the encouragement hypothesis and the opportunism hypothesis. In this study, we conducted the analysis to confirm which one of these two hypotheses is empirically proved.

3. Methodology

In this study, I will focus on the listed companies in China from 2021, after the Securities Law was revised, to April 2022. Considering the fact that in China, the act of purchasing D&O insurance is not compulsorily required to be disclosed in public, in order to collect the information about buying D&O insurance, the research follow the method of relevant articles [13][14][15]. Using keyword search in Chinese financial databases, including CSMAR and CNinfo, I have collected sufficient D&O insurance purchase information, covering purchase time, total fee, insurance period, and the name of the listed company in China mainland, from 2021 to April 2022.

To determine the value of listed companies, we collected the stock price of all the listed companies in China from the CSMAR database. Only the companies with data covering all the time in the period were kept. All these quantitative data will be analyzed using Stata.

When it comes to the selection of model built-up, since we select the 2020 Securities Law revision as the exogenous event to do the event study, we build the CAR model.

$$CAR(-t, t) = \beta_0 + \beta_1 * Insurance_{i,t} + \beta_2 * Control Variable_{i,t} + \epsilon_{i,t} \quad (1)$$

Where insurance is a dummy variable, insurance=1 if the company bought or had bought D&O insurance during the period, 0 if not. And the explained variable is the abnormal return rate 1-5 trading days after the event calculated using the CAPM model. The event window period will be varied from 120 trading days to 90 days [16]. The controlled variables include the companies' asset sizes, industries, leverage, ROA, net profit rate, the size of the board, etc. The large number of controlled variables aims to clarify the specific effect of D&O insurance on different kinds of

companies. All the data of control variables were collected from CSMAR and Wind databases. In the last step, all the finance firms and firms with insufficient data were deleted.

Table 1: Definition of main variables in CAR model.

Variable	Name	Definition
Explained Variable	CAR(-t,t)	Change in the cumulative abnormal return rate t days before and after the Insurance event
Explanatory Variable	Insurance	The event that a corporation bought D&O insurance on a specific day
Control Variables	ROA	Return on Total Assets
	Lev	Debt to asset ratio (total debt/ total asset)
	Size	Natural logarithm of the total asset size
	Profit	Natural logarithm of the net return (0 if net return<0)
	Growth	Total asset growth rate
	Boardsize	Size of the BOD
	Indratio	Size of independent directors/Broardsize
	Cr1	Shareholding ratio of the largest shareholder
	Dual	Dummy Variable, equals to 1 if there exists CEO duality, 0 if not.
	SD	separation of ownership and control

4. Results

According to the result of regression below, we found that when variable t are in range 1 to 5, which represents the event window period of event, there all exists cumulative abnormal return. The coefficients of Insurance in the window period before and after the event are all significantly positive, which indicates that purchasing D&O insurance has a significant positive influence on company values. The concrete improving effect ranged from 1.1% to 1.2% among different CAR models. This result implied that under the condition that the litigation risk has been increased for all Chinese listed companies since 2019, D&O insurance did help companies to improve their risk management level and protect the interest of minor directors and investors.

Table 2: Different CAR results.

Model	Sample Size	Difference in return rate	t value	r-squared
car33	560	-0.01217***	2.77	0.069
car55	560	-0.01188**	2.16	0.067
car77	560	-0.01552**	2.40	0.070

Notes: *, **, *** represent significance level 10%, 5% and 1% respectively.

From the perspective of investors, the result showed that buying the stock of listed companies with D&O insured can enjoy the risk protection. This effect has been captured by the market, thus improving the value of stocks. This result was in consistent with the encouragement hypothesis as is mentioned above.

The test result revealed that all the coefficients of Insurance were significant at 10% possibility level, and the majority of those were significant at 5% level. This implied that the effect of D&O insurance has been captured on daily basis, which means the conclusion is robust. Since there were little difference in the structure of boards between the companies with and without D&O insurance, the possible explanation of the mechanism can be the decline of risk level, which allows company to take the opportunities to invest more aggressively in order to improve their values.

5. Conclusion

This research used the event study method to analyze the effect of buying D&O insurance on the values of listed companies in China. This study found a significant positive market reaction to the event during the D&O insurance buying period, which shows the positive value effect of D&O insurance. This result is in advance confirmed by the robustness test. According to relevant literature, the mechanism of this effect can be explained by the “encouragement effect theory”, which means D&O insurance contributes to the growth of company value by encouraging company managers and owners to improve their risk tolerance levels and participate more in high-risk expansion acts, like technology innovation or acquisition.

From the perspective of the Chinese capital market, since the positive influence of D&O insurance on company values is confirmed, this finding also proves the correctness and importance of the 2019 revision of the Securities Law, which has guaranteed a good environment for the popularization of D&O insurance among Chinese listed companies and promoted the protection of minor directors and investors.

Our work is innovative in that it gives particular emphasis on the development of D&O insurance in the past 2 years, when the development in this area, both in legislation and market, was apparently faster than before. The selection of the studied period gives our work a better horizon on the present situation of D&O insurance in China. On the other hand, by taking into consideration a lot of control variables, the true effect of D&O insurance can be revealed without significant error. At last, this work considered both the positive and negative effect of D&O insurance at the beginning, we gave special emphasis on the effect relevant to company risk during the study, and finally reached a satisfying result.

However, our study still exists several limits. Firstly, inhibited by the present regulations, it was hard to collect the D&O insurance information of every listed company in the Chinese stock market with exactly no gaps and omissions. Meanwhile, the selection methods of control variables in the empirical analysis section can also be improved, given that many other variables were chosen in other studies, such as managers' salaries, company age, and the shareholding ratio of independent directors [17]. These factors may also have the possibility of having an influence on company values.

Given the strength and omissions in our study, we finally proposed some advice: Firstly, the mechanism of the mutual influence between D&O insurance and other control variables, especially the risk act of company managers and officers in detail, in order to have a deeper understanding into the concrete mechanism of the effect of D&O insurance. Second, given that this research has set the foundation for deeper study into D&O insurance in China, further study is needed in order to get a numerical analysis of the concrete effect.

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