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ON THE CORPORATE DEMAND FOR DIRECTORS' AND OFFICERS' INSURANCE IN CHINA

Using a sample of Chinese listed firm with announcements of seeking D&O insurance, we find evidence to support that directors and officers with higher risk aversion will induce the listed firm to be more likely to purchase the D&O insurance, using the risk aversion measures such as working backgrounds, foreign share issues and controlling shareholder backgrounds. Our empirical results also reject the higher risk hypothesis, even using the same time period data with Zou et al. (2008). This research has potential contribution to both understanding of advantageous selection story of insurance demand and explanation of corporate demand for D&O insurance.

Keywords: *D&O insurance; advantageous selection; corporate governance; risk aversion.*

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ДО ПРОБЛЕМИ КОРПОРАТИВНОГО ПОПИТУ НА СТРАХУВАННЯ ДИРЕКТОРІВ І ПОСАДОВИХ ОСІБ У КИТАЇ

У статті на прикладі даних китайської фірми, що оголосила тендер на страхування директорів і посадових осіб, автори знаходять свідоцтва на підтримку того, що директори і посадові особи з підвищеним неприйняттям ризиків наполягатимуть на придбанні фірмою страхування, використовуючи заходи щодо запобігання ризикам, такі як професійна підготовка, випуски іноземних акцій і контроль акціонерів. Емпіричні результати також заперечують гіпотезі високого ризику, навіть з використанням даних за той же період часу, що і Цзоу і соавт. (2008). Це дослідження вносить потенційний вклад як в розуміння переважного вибору у страховому попиті, так і в пояснення корпоративного попиту на страхування директорів і посадових осіб.

Ключові слова: *страхування директорів і посадових осіб; переважний вибір; корпоративне управління; неприйняття ризику.*

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К ПРОБЛЕМЕ КОРПОРАТИВНОГО СПРОСА НА СТРАХОВАНИЕ ДИРЕКТОРОВ И ДОЛЖНОСТНЫХ ЛИЦ В КИТАЕ

В статье на примере китайской котирующейся фирмы, объявившей тендер на страхование директоров и должностных лиц, авторы находят свидетельства в поддержку того, что директора и должностные лица с повышенным неприятием рисков будут настаивать на приобретении фирмой страхования, используя меры пресечения риска, такие как профессиональная подготовка, выпуски иностранных акций и контроль акционеров. Эмпирические результаты также отвергают гипотезу высокого риска, даже с использованием данных за тот же период времени, что и Цзоу и соавт. (2008). Это исследование вносит потенциальный вклад как в понимание преимущественного выбора в страховом спросе, так и в объяснение корпоративного спроса на страхование директоров и должностных лиц.

Ключевые слова: *страхование директоров и должностных лиц; преимущественный выбор; корпоративное управление; неприятие риска.*

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1. Introduction. Directors' and officers'(D&O) insurance are purchased by firms, mostly listed ones, or together with directors and officers, to protect the insured D&O for the legal liability arising from their professional activities on behalf of a company. D&O insurance appeared first in America in 1934 and was introduced in China only after 1996. Till 2010, 109 listed companies in China announced to purchase D&O insurance, which amounted to 5.28% of the total listed companies in China.

In this paper, we investigate a fundamental question in the research area of both D&O insurance and corporate finance: what factors drive the demand for D&O insurance in China. Specifically, we test two conflicting hypotheses explaining the demanding factors. The first one is that companies with higher corporate governance risk will prefer purchasing D&O insurance, which is just like in circumstances under adverse selection observed at other insurance markets (for example, Chiappori & Salanie', 2000), except that we cannot observe the detailed insurance coverage and ex post loss. So the extent of controlling-minority shareholder incentive conflicts are positively related with the incidence of seeking D&O insurance (Zou et al., 2008), which implies that the corporate governance quality is negatively while potential tunneling measures are positively related with D&O insurance purchase decisions. Another conflicting hypothesis argues that it is not the firms with higher corporate governance risk but the firms with higher risk averse directors and officers that seek D&O insurance, which is quite like the case of advantageous selection in insurance markets (for example, Einav & Finkelstein, 2011). Those companies purchasing the insurance do not have bad risks, i.e., intensive controlling-minority shareholder incentive conflicts, but rather have higher risk aversion.

In most countries or stock exchanges, D&O insurance details are not required to be disclosed by companies who purchase them. While in this research, we take advantage of the special requirements from Chinese Securities Regulating Committee (CSRC), which stipulates that purchase decisions must be approved by shareholder meetings. Therefore, we can observe all the purchase decisions because the voting results of shareholder meetings are required to be fully disclosed. We set up a dataset with all the companies who announced their decision to purchase D&O insurance. And we also set up a matched sample using industry and size criteria. Contrary to the empirical findings of Zou et al. (2008), our empirical findings reject the controlling-minority shareholder incentive conflicts hypothesis while support the higher risk aversion hypothesis.

Our work has potential contributions in two ways. First, although advantageous selection has been set up as a successful theoretical model recently (Einav & Finkelstein, 2011), the empirical evidence is rather limited. The findings in this paper provide an example of insurance purchase because of higher risk aversion instead of higher risk in a specific D&O insurance market. Second, differently from the previous research that focused on the risk side explanations, we provide new explanations of risk aversion side to the demand for D&O insurance. To our limited knowledge, this is the first effort to understand the demand for D&O insurance from the risk aversion perspective. The rest of the paper is organized as follows: we review the related literature and develop our hypotheses in Section 2. Sections 3 and 4 provide our dataset, variable definitions and empirical results separately. We conclude in Section 5.

2. Literature review and research hypothesis. Core (1997) examined the dataset of Canadian companies with detailed D&O insurance coverage and deductibles and found that firms with greater litigation risk were more likely to purchase D&O insurance and carry higher limits and deductibles. Core (1997) divided the demand for D&O insurance into 3 sources: efficient contracting with directors, efficient corporate insurance and managerial entrenchment. Chalmers et al. (2002) found that a significant negative relation between the three-year post-IPO stock price performance and the insurance coverage purchased in conjunction with the IPO. Zou et al. (2008) argued that judicial reforms in China had created non-negligible perceived securities litigation risks. So firms with more acute controlling-minority shareholder incentive conflicts are more likely to consider purchasing D&O insurance. Lin et al.(2011) found that the acquirers whose executives have higher level of D&O insurance coverage experience significantly lower announcement-period abnormal stock returns, which implied a moral hazard problem.

Based on the above findings, we may develop a hypothesis that firms with higher corporate governance risk are more likely to pursue D&O insurance. Because higher corporate governance risk may induce higher security litigation risk and hence higher indemnity liability, firms with risk averse directors and officers will rationally purchase more D&O insurance. Thus we have hypothesis 1:

H1: Firms with higher corporate governance risk are more likely to purchase D&O insurance.

Although it is highly possible that firms with more corporate governance risk are more likely to purchase D&O insurance, it is also possible that firms with directors and officers who are more risk averse are more likely to purchase insurance with the corporate governance risk controlled. This is just like the advantageous selection observed in other insurance markets except we cannot observe the detailed insurance coverage and ex post loss. Meza & Webb (2001) postulated that selection based on risk aversion is advantageous if those who are more risk averse both buy more insurance coverage and have lower risks. Finkelstein & McGarry (2006) found that people who are more risk averse are both more likely to own LTC insurance and less likely to enter a nursing home, which is the evidence of advantageous selection. Fang et al. (2008) found that individuals with higher cognitive ability have both greater insurance coverage and lower healthcare. So based on the above reasoning, we have hypothesis two:

H2: Firms with more risk averse directors and officers are more likely to purchase D&O insurance.

3. Data and variables. Because purchase decisions are disclosed in the listed companies shareholder meetings and board meetings announcements while the real purchase information is not disclosed, we collect all the announcements from WIND and China InfoBank, two financial data vendors in China. From 2002 to 2010, we have 109 firms with purchase announcements. Excluding 11 financial companies, one ST company, one PT company and two IPO companies, we have 94 samples.

Following Zou et al. (2008), we use the following variables to measure the extent of controlling-minority shareholder incentive conflicts, which in fact measures the corporate governance quality. LARGEREP is the percentage of directors on behalf of controlling shareholders. If controlling shareholders have greater power in a boardroom, minority investors are more likely to be expropriated and thus the litigation risk of D&O is higher. The following variables are all widely used in the corporate governance literature as the measures of potential tunneling activities by controlling shareholders. NLEND measures the net lending from the listed firm to the controlling shareholder. TGDSV measures the related party transaction of goods and services between a listed firm and a controlling shareholder. ISSUE measures whether a firm issued new shares in the recent two years. ASSTRAN measures the related party transaction of assets between a listed firm and a controlling shareholder. CREDITG measures the loan guarantee from a listed firm to a controlling shareholder. ROE6_7 measures whether the roe of a listed firm in the recent two years is between 6% and 7%, a measure of whether a listed firm has accounting manipulation or not because 6% is a limit of refinancing qualification regulated in China. And we also have interaction terms measuring the potential related party transaction, TGDSV*ISSUE and ASSTRAN*ISSUE.

To measure the extent of risk aversion of directors and officers, we consider the characteristics of Chinese stock market as an emerging market. As at an emerging market, Chinese stock market regulation is relatively less strict than that of a developed market. As a result, litigation risk and related liability are much higher at a developed market than at a emerging market. Therefore, if directors and officers relocate from a developed market to an emerging market, they would be more risk averse than their local counterparts. So we have two variables to measure the risk aversion of directors and officers due to different regulatory environments. The first is *fd*, which measures whether a director or officer has foreign work backgrounds, i.e., he himself is a foreigner or has foreign working experience. The second is whether a listed firm issued H in Hong Kong or B to foreign investors besides A share, which is traded in mainland China, because issuing H share or B share will render the firm under the regulation of both Chinese mainland security market regulation and Hong Kong market or international market regulation. Third, we have *ind*, which measures the percentage of independent directors in a boardroom. Since independent directors are professionals and they have no business relations with a listed firm in most cases, they would be more risk averse than inside directors. Forth, we have *top1_nat* measuring whether a controlling shareholder is a state-owned company or privately owned.

We also have control variables such as common corporate governance measures: the percentage of the shareholdings of the controlling shareholder, whether directors and officers hold shares etc. We list all the variable definitions in Table 1.

Table 1. **Main variables definitions**

Variable	definition
dependent	
INS	Dummy variable, equals 1 if decide to purchase D&O insurance
Variables measuring risk aversion	
fd	The percentage of D&O with foreign backgrounds (%)
top1_nat	Dummy variable, equals 1 if the controlling shareholder is state owned
ind	The percentage of independent directors in the boardroom (%)
hs	Dummy variable, equals 1 if have H shares outstanding
bs	Dummy variable, equals 1 if have B shares outstanding
Variables measuring controlling-minority shareholder incentive conflicts	

The End of *Table 1*

variable	definition
LARGEREP	The percentage of directors on behalf of controlling shareholders in a boardroom (%)
NLEND	The change of net lending
TGDSV	The ratio of related party transaction of goods and services on total assets
ISSUE	Dummy variable, equals 1 if issued new shares in the recent two years
ROE6_7	Dummy variable, equals 1 if ROE is between 6% and 7%
TGDSV*ISSUE	Interaction term, ratio of potential related party transaction of goods and services on total assets
ASSTRAN	The ratio of related party transaction of assets on total assets
ASSTRAN*ISSUE	Interaction term, measuring potential related party transaction of assets on total assets
CREDITG	The ratio of loan guarantee from the listed firm to controlling shareholder on total assets
Control variable	
top_1	The percentage of shareholdings of a controlling shareholder
stock_m	Dummy variable, equals 1 if directors or officers hold shares
size	Total assets (logarithm)
leverage	The ratio of total debt over total assets
Grow	The ratio of share price over net assets per share
roa	Return on total assets
Viorec	Dummy variable, equals 1 if directors or officers were subject to regulation penalty in the recent two years

4. Empirical results. First we apply a match model method to form a one-to-one sample, which is, for each listed firm which announced the purchase of D&O insurance, we choose a listed firm, which is in the same industry and has the total assets most close to the matched one. Then we apply a probit regression model with the form of (1):

$$INS_i = f(\alpha_i + \sum \beta_k * Aversion_{k,i} + \sum \beta_r * Tunneling_{r,i} + \sum \beta_n * C_{n,i}) + \varepsilon \qquad (1)$$

Aversion means all the variables measuring the extent of risk aversion of directors and officers. Tunneling means all the variables measuring the extent of the controlling-minority shareholder incentive conflicts.

Table 2 reports the main probit regression results. First we run a probit regression for the whole sample of 190 observations from 2002 to 2010. We found that the 4 variables out of 5 risk aversion variables are statistically significant. More directors or officers having foreign backgrounds, higher percentage of independent directors, issuing H shares and controlling shareholder being privately owned will more likely induce the listed firm to purchase D&O insurance. While all the variables measuring the extent of controlling-minority shareholder incentive conflicts are not statistically significant, which is contrary to the empirical results of Zou et al. (2008).

To test the robustness of the empirical results and also to test whether our results are different from Zou et al. (2008), if our sample falls into the same time period with Zou et al. (2008), we further divide our sample period into two subperiods: 2002 to 2006 and 2007 to 2010. The 2002 to 2006 period is just the same sample period as Zou et al. (2008). However, we find that our main empirical results do not change.

Table 2. **Probit regression results**

	2002-2010(190)		2002-2006(104)		2007-2010(86)	
	M.E.	p-value	M.E.	p-value	M.E.	p-value
Risk aversion variables						
fd	5.15	0.00***	8.23	0.08*	5.88	0.00***
ind	2.34	0.09*	3.69	0.05*	2.15	0.59
hs	3.48	0.02**	0.68	0.76	10.17	0.00***
bs	1.80	0.17	-0.15	0.94	4.67	0.02**
top1_nat	-0.45	0.05*	-0.86	0.02**	0.10	0.79
Tunneling variables						
LARGEREP	0.21	0.74	1.27	0.20	-0.05	0.96
NLEND	-1.46	0.26	0.42	0.83	-15.79	0.00***
TGDSV	0.67	0.17	0.23	0.89	1.00	0.20
TGDSV* ISSUE	-0.13	0.83	-0.29	0.88	-0.05	0.96
ASSTRAN	3.26	0.24	-1.80	0.70	7.45	0.25
ASSTRAN* ISSUE	-3.71	0.22	3.26	0.56	-15.79	0.10
CREDITG	1.68	0.57	-1.28	0.76	-6.86	0.82
ROE6_7	0.25	0.48	0.19	0.66	1.71	0.18
ISSUE	0.21	0.36	0.18	0.65	0.49	0.28
Control variables						
top_1	-0.29	0.66	-1.30	0.17	-0.45	0.75
stock_m	-0.34	0.81	-74.15	0.77	1.29	0.50
grow	0.01	0.56	0.08	0.28	-0.07	0.15
roa	-0.37	0.78	-4.81	0.27	2.69	0.15
leverage	1.07	0.11	0.62	0.55	2.24	0.11
viorec	-0.65	0.14	-0.36	0.57	-0.89	0.30
size	-0.29	0.01**	-0.19	0.41	-0.37	0.10

5. Conclusion. Differently from the previous studies, which focused on the risk side of explanations of why corporations demand D&O risk insurance, this research focused on the risk aversion side of explanations. Using the sample of Chinese listed firms with announcements of seeking D&O insurance, we set up a matched sample and run a probit regression. Our empirical results strongly support that directors and officers with higher risk aversion will induce a listed firm to be more likely to purchase D&O insurance, using risk aversion measures such as working backgrounds, foreign share issues and controlling shareholder backgrounds. Our empirical results also reject the higher risk hypothesis, even using the same time period data with Zou et al. (2008). Finally, this research has potential contribution to both understanding of advantageous selection story of insurance demand and explanation of corporate demand for D&O insurance.

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