

The Effect of the Directors & Officers Insurance on the Firm Value

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I. Introduction

Developed countries(such as the US and Japan), had high vitalization of purchasing the directors & officers insurance for a long time but in the case of Korea, firms began to show interest very recently(early 2000s).

Directors & Officers insurance(D&O insurance)¹⁾ is the liability insurance that when firm's officers(president, vice president, or operating officers) act unfairly(violation of duty, negligence, misrepresentation or other wrongful act) and lead to suffering of personal or group damage, their loss is covered with it by a claim for damages during the insurance policy period(Choi 1999). There have been several discussions about the functions of D&O insurance(in the event of the insurance accident, the victims(shareholders, employees, customers, etc.) loss compensation, manager's efficient risk dispersion, executive's stability enhancement of the management activities, recruiting competent management, inducing active participation of executive officer), but this study particularly focused on the function of monitoring of the business activities of enterprises.

D&O insurance is expected to play a role in increasing the corporate transparency by alleviating the outside directors' burden of the liability and encouraging carry out the smooth business performance. Meanwhile, D&O insurance fee²⁾ is known to consider the macroeconomic variables, industry sector, total

1) The interest of D&O insurance in Korea arouse in July 1998 motivated Korea's first shareholder derivative suit over Cheil Bank's bad debt and the claim for damages against Samsung Electronics' former and current director's.

2) D&O insurance fee reflects corporate litigation risk and the cost & profit incurred

assets, total liabilities, total number of executives, etc., as general corporate insurances. And the information of the business risk and governance quality is highly likely to be included in D&O insurance fee(Lee and Choi 2006). The D&O insurance can realize better corporate governance and indirect monitoring of management activities by underwriting, renewal process of insurance³⁾.

This study empirically test the effect of D&O insurance on the firm value, using the Korean stock market listed companies from 2006 to 2010. That is, we examine whether to D&O insurance to increases firm' s transparency, the quality of corporate governance and then improve value relevance of accounting information. The results of the analysis show that market reactions in the firms with D&O insurance is more positive(higher) accounting information(net income per share) than those that don' t insured.

This paper is organized as follows. Section I describes the introduction and section II discusses the relevant prior studies and research hypothesis. Section III presents the sample selection and the research method. Section IV reports our empirical results and finally Section V ends with the conclusions and limitations of this study.

II . Literature Review & Hypothesis Development

2.1 D&O insurance(premiums)

Directors & Officers insurance premium has been used in researches involving audit fee, executive compensation and corporate governance structure as a proxy to measure an ex ante litigation risk(Romano 1990; Brook and Rao 1994; Core 2000; Lee et al. 2007).

Brook and Rao(1994) analyzed the effect on the market response when Limited

from the underwriting of firm risk(Lee et al. 2007).

- 3) To determine whether to underwrite insurance and to decide appropriate insurance fee, insurance company needs to investigate many factors such as the insured company' s business status, financial condition, corporate governance, and etc. During the insurance contract period, it is necessary to notify the insurance company about the insured company' s director and change of risk. Also, in case of fraud cases, insurance company can review related materials and then request to correct. If the insured firms don' t comply with orders, the insurance company may increase the fee or refuse to renew the contract.

Liability Provisions(LLP) on the Board of Directors is introduced in the market. The result showed that the introduction of Limited Liability Provisions has statistically significant positive value for financially underperforming firms. These results can be interpreted as a reflection of the expectations of the market that outside directors of the poor performing firm will make an effort to improve their business performance. Speaking of corporate governance issues, O'Sullivan(1997) suggested that in the case of major firms where monitoring through external ownership is costly, D&O insurance that insurance companies are selling will play an positive role to monitor managers. In addition, Core (2000) found that firms with weak corporate governance bear higher D&O premiums. Similarly, Lee and Choi(2006) reported that domestic firms with excellent corporate governance pay lower D&O premiums. From these result, we can conclude that D&O premiums, used as a proxy to measure an ex ante litigation risk, is an useful substitute when explaining corporate governance of the firm.

Most previous foreign researches involving D&O insurance analyzed the relationship between the demand for D&O insurance and firm characteristics, or the effect of corporate governance structure on D&O premiums. While developed countries such as the United States, had high vitalizations of purchasing D&O insurance, in South Korea, the sales of D&O insurance began to increase after the currency crisis in 1997. It seems that this trend is relevant to the issue of responsibility of board of directors, and the outside director system⁴⁾, which was introduced as part of the governance structure reform at the time.

Lee and Choi(2006) analyzed the characteristics of the firms that purchase D&O insurance. The result showed that firms with bigger size, higher stock price fluctuation, higher debt ratio, higher ownership ratio, and higher proportion of institutional investors has higher probability of purchasing D&O insurance. These results show that firms with high corporate risk, monitoring cost, transaction cost are trying to diversify their risk by purchasing D&O insurance. Lee et al.(2007) analyzed whether firm's litigation risk⁵⁾ increases

4) The outside director policy was started in 1995 during the part of governance reforms, and POSCO in early 1997 voluntarily introduced it to the country. After experiencing a financial crisis in 1997, through the law amendment, the policy was complemented. In December 31st of 2003, the revised Securities and Exchange Act strengthened the policy by making a majority of the board of directors of listed companies with more than two trillion won to be from outside director.

5) Used D&O insurance fee that is calculated by the external experts(insurance company) as the proxy of litigation risk for the analysis.

the audit fees, and found that firms that pay high D&O premiums also pay high audit fees. In order to understand the effect of D&O insurance on the conservative accounting treatment, Choi et al.(2011) separated data by before the introduction of class action suit(2004-2005) and after the introduction(2005-2007). As a result, they found that conservative accounting treatment is strengthened in firms without D&O insurance after the introduction of the class action suit. However, in the case of firms with D&O insurance, the test showed no significant change in the accounting method before, and after the introduction of the class action suit. This result indicates that the increase in the litigation risk of firms due to the introduction of class action suit is being partly offset by D&O insurance.

2.2 Value Relevance

In previous research related to the value relevance of accounting information analysis was conducted primarily with respect to audit quality, properties of board of directors, and company' s profitability based on Ohlson' s(1995) basic model.

With respect to the audit quality, Kim and Bae(2013) studied to see any differences between the value relevance of accounting information depending on the sizes of auditors, and found that firms audited by Big 4 audit companies, had higher value relevant of account information such as net asset and net income. This result showed that with bigger audit firms, the company is expected to give better accounting information quality, so the investors' positive reaction was reflected. on the other hand, Jeong and Lee(2014) separated outside auditor as industry-specific audit firms⁶⁾ and non-industry-specific audit firms to analyze the value relevance of accounting information (net income and net asset). This analysis showed that firms audited by industry-specific audit firms had increasing in the value relevance of accounting formation (net income and net asset).

With regard to the characteristics of board of directors, Moon and Park(2005) states that the board' s independence, professionalism and high activity of outside directors, showed the higher price multiples on earnings compared to

6) Analyze using dummy variable for industry professional auditors to be 1 when the account firm has the highest market share or its industry market share is higher than 20%, or otherwise it is 0.

those that are not. Also, firms with high independence, professionalism, activity of the audit committee had higher price multiples on earnings compared to those without.

Looking at CEO's opportunistic earning management and with regard to the quality of accounting earnings, Ji et al(2008) studied the impact on earnings and value relevance when there is holding company system conversion⁷⁾. When firm changes its holding company's ownership structure to holding company, manager's opportunistic earning management decreases and accounting earning's (earnings per share) relevance of stock price increases after the conversion

Regarding corporate profitability, Burgstahler and Dichev(1997) showed increasing in the firm's profitability measured by return on equity, the accounting information(net income and net assets)'s value relevance was increased. Park and Park(2009) also analyzed the effect of profit gain type on value relevance,

Firms that added their profit by increase in earnings had higher value relevance compared to firms that added their profit by decrease in cost. Also, Kim and Cho(2011) stated that with higher firm's profitability, value relevance of accounting information was found to be higher.

2.3 Hypothesis Development

This study is trying to examine whether the reaction of investors to the accounting information of the firm varies according to the presence of D&O insurance.

D&O insurance has been recognized as a means for ensuring competent management, and it is possible to expect an indirect monitoring functions of the management activities of insured firm. In addition, the presence of D&O insurance is expected to reduce the burden of the liability of outside directors and increase the transparency of firms. On the other hand, in the previous researches related to D&O insurance found that firms with D&O insurance has higher value relevance of accounting information compare to firms without D&O insurance when the scale of the auditor is larger(Kim and Bae 2013), the indecence of Board of Directors is higher(Moon and Park 2005), and

7) Under the holding company system, many positive effects happen, such as independent company has higher independence in management and is centered more on the profit. Also by the simple(transparent) investment structure, responsibility and transparency is improved(Ji et al 2008).

have changed ownership structure to the holding company(Ji et al. 2008). That is, the larger the monitoring cost, and the higher the transparency of the firm, market participant make a discriminative evaluation on their accounting information.

In other words, D&O insurance is expected to improve the quality of firm's financial statement, and hence firms with D&O insurance are predicted to have higher value relevance of accounting information compare to uninsured firms. Therefore, following hypothesis is established.

Hypothesis : firms that are insured with D&O insurance have higher value relevance of accounting information compare to uninsured firms.

III . RESEARCH DESIGN

3.1 Research Model

In order to examine the effect of D&O insurance on the value relevance of accounting information, following equation(1) was used. The equation(1) was based on Ohlson(1995)'s model⁸⁾ and if verification variable β_4 has positive value, it means firms with D&O insurance has higher relative value relevance of accounting information than firms without D&O insurance. In other words, firms with D&O insurance receive⁹⁾ better evaluation from market participants than firms without D&O insurance.

$$P_{t+1} = \beta_0 + \beta_1 BV_t + \beta_2 E_t + \beta_3 NEGE_t + \beta_4 E \times DNO + \beta_5 YEAR + \epsilon \quad (1)$$

$$\begin{aligned} P_{t+1} &= \text{Price at March}(T+1); \\ BV_t &= \text{Net Asset}; \\ E_t &= \text{Net Income}; \\ NEGE_t &= E \text{ If the } E \text{ is lower than } 0 (\text{otherwise } 0); \\ YEAR &= \text{Year dummy variables}; \end{aligned}$$

8) Ohlson(1995) model explains firm value with determinants such as net asset and net income.

9) This is because the D&O insurance can act as the indirect supervision of the business activities of firms, so it can be interpreted that firms enrolled in such insurance reflects the positive(favorable) assessment of market participants.

3.2 Sample Selection

This study gathered data from security market listed companies during the period of 2006 to 2010, and from this data set, companies that meets following conditions were selected.

First, the financial statement required for analysis is collected from Kis-value database. Secondly, to improve the comparability of the sample firms, only firms years fiscal year-end December 31 and non-financial firms are included in the sample. Third, the information for the D&O insurance was hand collected form insurance asset section of business report provided by the Financial Supervisory Service electronic public announcement system(<http://dart.fss.or.kr>). Finally, in order to eliminate the effects of extrme values on the analysis result, observations above high 1% and below low 1% are adjusted to a value corresponding to each one percent(winsorization).

IV. Empirical Results

4.1 Descriptive Statistics & Correlation Matrix

<Table 1> presents a basic statistics of variables used to examine <Hypothesis 1>. Mean values of stock price(P), Book-Value per share(BV), net income per share(E), negative net income(NEGE) were 28686.34, 29814.65, 2586.22, -444.22, respectively. The mean value of Directors and officers insurance(DNO) variable was 0.15, which means that 15% of firms in the sample had D&O insurance.

Insert Table 1 around Here

<Table 2> below shows the yearly distribution and industry distribution. In the yearly distribution of Panel a), it can be confirmed that samples are evenly distributed along the sample period, though some are showing the

difference in the number of samples. In industry distribution of Panel b), although some are showing the difference in sample size, it can be seen that samples are evenly distributed across multiple industries. The service industry had most samples(63 firm-years) followed by Chemical. pharmaceutical, rubber plastic industry(62 firm-years), electricity, gas, construction industry(44 firm-years).

Insert Table 2 around Here

The following <Table 3> shows the correlations between the main variables used in the hypothesis testing of the study. The dependent variable of this study, Stock price(P) showed positive correlations with Book-Value per share(BV), net income per share(E), and negative net income(NEGE) and negative correlation with D&O variable(DNO). Meanwhile, VIF problem, a multicollinearity based on the correlation between independent variables and the control variables was confirmed through the regression analysis and found to be not significant.

Insert Table 3 around Here

4.2 Regression Results

<Table 4> shows the result of regression analysis that examine the effect of D&O insurance on the value relevance of accounting information. F-values which indicate the goodness of fit of the model, appeared to be statistically significant, and explanatory power of the model(Adj R²) was appropriately 75%. Prior to the regression analysis, sample was divided into firms with D&O insurance and firms without D&O insurance for comparison of mean values of

variable. As a result¹⁰⁾, firms with D&O insurance had significantly higher mean values of stock price, Book-Value per share(BV), and net income per share(E). In the regression result, the interaction variable of D&O and net income ($E \times DNO$) showed a statistically significant positive value. This means that market participants shows an affirmative response to book reporting earnings of firms with D&O insurance. We can interpret¹¹⁾ this result by the fact that D&O insurance is expected to perform as direct and indirect monitoring function on management activities of the firm.

Insert Table 4 around Here

4.3 Additional Discussion

In addition to the basic analysis of this study, I have divided ratio of outside directors and ratio of foreign ownership(which is used as a proxy measure for corporate governance variable) in to three quantile to examine whether the level of foreign ownership/outside directors affects the regression result. The analysis result is present in the <Table 5> below. First, in regarding the interaction variable of D&O and net income($E \times DNO$), firms with high ratio of outside directors did not show statistically significant value. However, firms with low ratio of outside director showed significantly positive value. This is due to the fact that D&O insurance is expected to perform monitoring function on management and make up for the lack of outside directors¹²⁾. Secondly, the interaction variable of D&O

10) After adding the industry dummy to control the possible effect on the specific industry, the paper's result didn't have any difference in the quality. For the purpose of convenience, this study only presents the result without controlled variables.

11) In the case of firms enrolled in D&O insurance, the result might be of th reflection of investor's expectation effectiveness of improved corporate governance.

12) Several previous studies show that with higher proportion of outside directors, the board's effectiveness and transparency increases and reflects the higher quality of corporate governance. This study's result show that even though a company has low proportion of outside directors, with the D&O insurance, can give a positive signal of corporate governance.

and net income($E \times DNO$) showed statistically significant positive value regardless of the level of foreign ownership. This result show that regardless of level of foreign ownership, investors have higher recognition of the usefulness of accounting information of firms with D&O insurance than firms that don't.

Insert Table 5 around Here

V . CONCLUSION

This study focuses on firm' s monitoring function of D&O insurance and examine the discriminative effect of D&O insurance status on value relevance of the accounting information. In other words, we verifies whether enrolling in D&O insurance enhances the corporate transparency, corporate governance quality and then increase the value relevance of accounting information.

Based on a sample of listed companies in the Korean stock market from 2006 to 2010, our empirical evidence suggests that market reactions in the firms with D&O insurance are more positive(higher) accounting information(net income) than those that don' t insured. This means that the assessment of D&O insurance by market participants is positive.

Limitations of this study are as follows: other than the positive features of D&O insurance, D&O insurance can cause managers(officers) to pursue more aggressive risk-taking behavior or moral hazard. But we do not able to control such effects in this paper. Also, although this study works based on the related existing research, there may be omitted variable problem because of uncontrolled variables that can affect firm value. Finally, the findings are very meaningful in that this study verifies the D&O insurance can be one of the factors influencing the firm value. Furthermore, these have important policy implications for firms without D&O insurance.

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<Table 1> Descriptive Statistics

	Mean	St. Dev.	Min	Median	Max
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<i>P</i>	28686.34	49357.75	280	8475	243000
<i>BV</i>	29814.65	49260.96	155.40	9908.45	247438.47
<i>E</i>	2586.22	5665.41	-4312.11	607.01	27299.99
<i>NEGE</i>	-444.22	3241.94	-91935.45	0	0
<i>DNO</i>	0.15	0.36	0	0	1

*) variable definition : *P* = Price at March(T+1); *BV* = Net Asset; *E* = Net Income; *NEGE* = *E* If the *E* is lower than 0(otherwise 0); *DNO* = 1 If firms enrolled D&O insurance(otherwise 0).

<Table 2> Sample Distribution by Year and Industry

Panel a) by Year						
	2006	2007	2008	2009	2010	계
<i>DNO</i> = 0 (not enrolled)	470 16.47%	469 16.43%	484 16.96%	489 17.13%	513 17.97%	2,425 84.97%
<i>DNO</i> = 1 (enrolled)	71 2.49%	85 2.98%	85 2.98%	94 3.29%	94 3.29%	429 15.03%
total	541 18.96%	554 19.41%	569 19.94%	583 20.43%	607 21.27%	2,854 100%

Panel b) by Industry ¹³⁾ (only firms enrolled in D&O insurance)					
Ind	N	%	Ind	N	%
1	25	5.83	8	36	8.39
2	8	1.86	9	44	10.26
3	25	5.83	10	36	8.39
4	62	14.45	11	21	4.90
5	27	6.29	12	30	6.99
6	35	8.16	13	63	14.69
7	17	3.96	total	429	100

<Table 3> Correlation Matrix

<i>BV</i>	<i>E</i>	<i>NEGE</i>	<i>DNO</i>
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13) 1(=food & beverages, agriculture & fishing), 2(=textiles, apparel & fur), 3(=pulp, paper products, furniture & printing), 4(=chemical, pharmaceuticals & rubber), 5(=Non-metallic mineral & metal), 6(=electronics), 7(=machinery & equipment), 8(=motor vehicles & other transport), 9(=gas, power & construction), 10(=wholesale & retail trade), 11(=transport), 12(=broadcasting & communication), 13(=services)

<i>P</i>	0.148 (<.0001)	0.100 (<.0001)	0.089 (<.0001)	-0.030 (0.110)
<i>BV</i>	1	0.802 (<.0001)	0.814 (<.0001)	-0.057 (0.002)
<i>E</i>		1	0.783 (<.0001)	-0.091 (<.0001)
<i>NEGE</i>			1	0.151 (<.0001)
<i>DNO</i>				1

*) P-value are in parentheses. Variable definitions are presented in <Table 1>.

<Table 4> Regression Results Hypothesis

$P_{t+1} = \beta_0 + \beta_1 BV_t + \beta_2 E_t + \beta_3 NEGE_t + \beta_4 E \times DNO$			
	Coef.	t-stat	p-value
<i>Intercept</i>	4694.7	4.45	<.0001
<i>BV</i>	0.37	22.94	<.0001
<i>E</i>	4.39	30.06	<.0001
<i>NEGE</i>	-1.65	-10.72	<.0001
<i>E × DNO</i>	1.42	7.97	<.0001
<i>YEAR</i>	Included		
N	2,854		
Adj R ²	0.749		
F-value	1064.76***		

- 1) *, **, *** Significant at the .10, .05, and .01 levels, respectively.
2) Variable definitions are presented in <Table 1>.

<Table 5> Additional Results

Panel a) Outside director(3 quantile)

	High group			Low group		
	Coef.	t-stat	p-value	Coef.	t-stat	p-value
<i>Intercept</i>	12288	4.66	<.0001	2126.87	2.09	0.037
<i>BV</i>	0.40	11.58	<.0001	0.35	20.34	<.0001
<i>E</i>	5.04	17.19	<.0001	3.83	23.70	<.0001
<i>NEGE</i>	-1.03	-3.95	<.0001	-2.19	-10.94	<.0001
<i>E×DNO</i>	0.05	0.17	0.8633	2.32	8.73	<.0001
<i>YEAR</i>	Included			Included		
N	679			2,175		
Adj R ²	0.768			0.731		
F-value	281.12***			739.53***		

Panel b) foreign investor(3 quantile)

	High group			Low group		
	Coef.	t-stat	p-value	Coef.	t-stat	p-value
<i>Intercept</i>	17497	5.14	<.0001	2813.04	3.48	0.000
<i>BV</i>	0.29	7.03	<.0001	0.41	30.08	<.0001
<i>E</i>	5.53	15.81	<.0001	2.87	21.53	<.0001
<i>NEGE</i>	-4.04	-5.98	<.0001	-1.10	-9.85	<.0001
<i>E×DNO</i>	0.89	2.86	0.004	1.11	4.67	<.0001
<i>YEAR</i>	Included			Included		
N	713			2,141		
Adj R ²	0.741			0.729		
F-value	256.22***			720.23***		

1) *, **, *** Significant at the .10, .05, and .01 levels, respectively.

2) Variable definitions are presented in <Table 1>.