

A Study on the Tax Net Operating Loss Carry-forward and Firm Value Belonging to Large Business Groups

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Abstract

The purpose of this study is to examine whether there are relation between the tax net operation carry-forward and firm value belonging to Large Business Groups. The loss carryover has a direct positive effect on firm value by the recognition of the deferred tax assets due to the net operation carry-forward.

For this purpose, two objectives were obtained; First, a positive associations between the tax net operation carry-forward and firm value of conglomerates are indicated. The findings provide that the market or investors recognized that the of the tax net operation carry-forward is a very effective method to reduce tax expense and evaluated that the tax net operation carry-forward can afford positive affection on the firm value of conglomerates. On the other hands, the effect on the deferred tax assets due to tax net operation carry-forward had not been observed.

Keywords: Tax net operating loss carry-forward; Firm value; Deferred tax asset

INTRODUCTION

The management practices undertaken by large business groups are a global phenomenon. And companies belonging to large corporate groups pursue maximizing profit of controlling shareholders through the transfer of wealth through transactions among related parties (tunneling). (Betrand et al., 2002; Cheung et al., 2006; Kim, 2008; Kwon et al., 2012).

On the other hand, there are a number of studies that show that management efficiency and management performance of companies belonging to large-scale enterprise group are higher than other companies. Because companies belonging to large-scale enterprise group have incentives to maximize enterprise value by being the same as controlling shareholders and managements (Siegel & Choudhury, 2012; Kim, 2011; Lee et al., 2010).

In this way, it can be inferred that companies belonging to large-scale enterprise group perform management strategy with a long-term perspective to increase enterprise value compared to other companies.

In addition, tax loss carryforwards are very important for corporate management decision making. According to previous study(Chon&Park 2008), if there is a tax carry-over

deficit, the manager seeks to take advantage of opportunities to reduce corporate tax through deficits through taxation through adjustments that increase profits. And corporate investment decisions and tax carry-overs are highly relevant(Cohn, 2007; Ramb, 2006).

Although tax loss carryforwards have a significant relation to management decision - making and corporate value of a large - scale enterprise group, there are few studies on tax loss carryforwards in Korea.

This is due to the difficulties in the empirical studies in which the corporate tax return data must be confirmed individually to identify the tax carry-over data, or the data should be collected by confirming the comments on the financial statement.

However, management decision making using tax carryover reversal is likely to be a very important part of a large - scale enterprise group and will have a significant impact on the enterprise value.

Therefore, this study is expected to have significance, and it is considered that it is meaningful in that verify the information effect of the tax carryover deficit of a large-scale enterprise group which is rarely performed in relation to enterprise value.

In this study, I examined how investors perceive the tax carry-forwards companies belonging to large corporate groups.

Amir (1999) predicted that tax loss carry-over would have a positive (+) effect on firm value because it could reduce future tax costs and was called "Measurement Effect". At the same time, it predicted that tax loss carryforward would have a negative (-) effect on firm value, because tax loss carryforward could be thought that there is a great possibility of loss in the future. This was called "Information Effect". In other words, the tax carry-forward can have positive (+) or negative (-) relationship with firm value.

Ko(2009) have analyzed publicly listed companies, and a statistically significant positive (+) result was observed for corporate value and tax loss carry-forward.

This study focuses on the relationship between the deficits of tax carryover and corporate value of a large group of companies and want to verify whether a Measurement Effect or an Information Effect exists.

HYPOTHESIS AND RESEARCH METHODS

Hypothesis

This paper tests in following two perspectives to prove the measure effect and information effect of the Tax net operating loss carry-forward of Firms belonging to large business groups.

Meanwhile, Choi Hwa-seop (2002) analyzed whether deferred income tax assets and deferred income tax liabilities, which generate tax effects, affect corporate values. The analysis found that deferred income tax assets are not significantly related to the company value, but the deferred income tax liabilities were verified to be associated with the company value and negative (-). Regarding the debt-to-equity of deferred income tax, he explained, " Investors seem to recognize it, but they don't seem to recognize the asset of deferred income tax. " Jeon and Choi(2004) verified how deferred income tax assets are valued in the stock market according to their feasibility. They expected that the amount of deferred income tax asset to be correlated with the amount of stock price (+), as assets of deferred income tax would grow as the likelihood of future realization (likelihood of taxable income) increased. The analysis shows that deferred income tax assets are recognized as assets in the market, and that there are differences in the degree of association between deferred income tax assets and corporate values depending on the degree of feasibility in the future.

First, whether positive correlation between net operation carry loss and the firm value would be observed due to the future tax saving effect of ne operation carry loss or negative correlation would be observed because the investors recognize the net operation carry loss as information of possibility of future loss.

Second, this paper test there is difference between the companies which recognized the deferred tax asset with regard to the net operation carry loss or not in perspective of correlation between the tax net operating carry loss and firm value.

To test the theories, this study set up the two hypothesis as follows;

Hypothesis 1: There is a positive correlation between the net operation carry loss and firm value.

Hypothesis 2: Correlation between the net operation carry loss and firm value is depends on the recognition of the deferred tax asset of the net operation carry loss

RESEARCH METHODS

Samples

In this study, the companies which meet the following conditions have been selected as samples.

- 1) Non-financial companies belonging to large business groups, which fiscal year ends December 31
- 2) Companies that can extract taxable income data from annotation of audit report

- 3) Companies that capital has not been impaired 2,440 companies which meet the above conditions has been selected.

Research model

To test the hypotheses 1 and 2, this study uses the following equations (1) and (2).

$$TQ = \beta_0 + \beta_1 NOL + \beta_2 MSH + \beta_3 Credit + \beta_4 Big4 + \beta_5 SIZE + \beta_6 LEV + \beta_7 OCF + \beta_8 ROA + \beta_9 \sum YD + \beta_{10} \sum IND + \varepsilon \quad (1)$$

$$TQ = \beta_0 + \beta_1 DTAD + \beta_2 IDTAD + \beta_3 Credit + \beta_4 Big4 + \beta_5 SIZE + \beta_6 LEV + \beta_7 OCF + \beta_8 ROA + \beta_9 \sum YD + \beta_{10} \sum IND + \varepsilon \quad (2)$$

$TQ = \{(\text{number of ordinary shares} * \text{closing price of ordinary share}) + (\text{number of preferred shares} * \text{closing price of preferred share}) + \text{book value of liabilities}\} / \text{total asset amount}$

$NOL = \text{opening balance of tax loss carryforward} / (\text{opening balance of total assets})$

$DTAD$: existence of DTA(1 or 0)

$IDTAD$: The cross-sectional variable of the variable of tax loss carry forward and the variable of DTA

MSH : Majority stake (including related party stake)

$Credit$: 11- Credit Rating

$Big4$: PwC, KPMG, Deloitte, Ernst & Young 1; Otherwise 0

$SIZE$: Company size (log (total assets))

LEV : Debt ratio (total debt / total capital)

OCF : Cash flow from operating activities / total assets

ROA : Return on total assets (net income / total assets)

YD : Year dummy

ID : Industry dummy

TQ , The dependent variable, is Tobin's Q as a proxy variable for firm value, and Tobin's Q is the ratio of the market value of equity to the replacement cost of the asset. The major interest variable is the tax carry-over loss (NOL), and in order to grasp it, NOL data collected from the annotations of audit reports manually. Controlled variables are major shareholder ratio (MSH), credit rating (Credit), whether auditor is major accounting firm or not (Big4), size of company (Size), debt to equity ratio (LEV), operation cash-flows (OCF), return on assets (ROA), also year dummies and industry dummies have been used.

RESULTS OF ANALYSIS

Descriptive statistics values

Table 1 shows descriptive statistics values. The average and median values of TQ were 0.686 and 0.608, respectively. And the mean and median values of NOL were 0.122 and 0.098, respectively. The average and median values of DTAD were 0.455 and 0.000, which means that the number of companies that recognized deferred tax assets is very small. The mean and median of MSH, the control variable, were 0.527 and 0.500, respectively. The average and median of the credit were 6.233 and 6.000, respectively. The mean and median value of Big4 were 0.871 and 1.000, respectively, and the mean and median value of SIZE were 26.251 and 26.052, respectively. The mean and median values of LEV were 0.473 and 0.490, respectively, and the mean and median values of OCF were 0.083 and 0.061, respectively. And the mean and median values of ROA were 0.066 and 0.053, respectively.

Table 1. Descriptive statistics values (N : 2440)

variable	average	standard deviation	minimum value	median	maximum value
TQ	0.686	0.497	0.000	0.608	5.454
NOL	0.122	0.023	0.000	0.098	0.322
DTAD	0.455	0.320	0.000	0.000	1.000
MSH	0.527	0.359	0.000	0.500	1.000
Credit	6.233	1.705	1.000	6.000	10.000
Big4	0.871	0.335	0.000	1.000	1.000
SIZE	26.251	1.998	22.459	26.052	32.673
LEV	0.473	0.226	0.000	0.490	1.000
OCF	0.083	0.548	-1.353	0.061	0.345
ROA	0.066	0.128	-2.295	0.053	0.863

Correlation analysis

Table 2 is the result of Pearson's correlation analysis. There is a statistically significant positive correlation between the tax carry-over loss of the companies belonging to large business group and TQ, the proxy value of firm value.

From the analysis, it is confirmed that there is a measurement effect that investors positively appreciates the tax saving effect of tax net operating loss carry-forward. However, a statistically significant negative correlation was observed for deferred tax assets. It means that tax net operating loss carryforwards, which reduce future tax costs, have a positive effect on corporate value, but deferred tax assets, which reduce future taxes in the same way, have a negative impact on corporate value.

Big4 auditors (Big4), size of company (SIZE) and debt to equity ratio (LEV) were observed to have a statistically

significant positive correlation. On the other hand, statistically significant negative correlation were observed for the major shareholder ratio (MSH), credit rating (Credit), and return on assets (ROA).

Table 2. Pearson correlation

	TQ	NOL	DTAD	MSH	Credit	Big4	SIZE	LEV	OCF
NOL	0.061								
	0.002								
DTAD	-0.069	0.024							
	0.001	0.230							
MSH	-0.208	0.013	0.040						
	<.0001	0.535	0.049						
Credit	-0.163	-0.217	0.011	-0.066					
	<.0001	<.0001	0.601	0.001					
Big4	0.121	0.047	-0.048	0.020	0.002				
	<.0001	0.021	0.018	0.312	0.913				
SIZE	0.397	0.000	-0.137	-0.230	-0.114	0.282			
	<.0001	0.988	<.0001	<.0001	<.0001	<.0001			
LEV	0.299	0.112	0.050	0.092	-0.667	-0.027	0.051		
	<.0001	<.0001	0.013	<.0001	<.0001	0.177	0.012		
OCF	-0.020	-0.018	0.007	0.027	0.112	-0.045	-0.054	-0.037	
	0.324	0.369	0.734	0.183	<.0001	0.025	0.008	0.064	
ROA	-0.036	-0.231	0.040	-0.028	0.392	-0.026	-0.076	-0.169	0.355
	0.074	<.0001	0.049	0.165	<.0001	0.196	0.000	<.0001	<.0001

Results of multivariate analysis

Table 3 shows the results of the research hypothesis 1. This is the result of analyzing the relationship between the loss and the enterprise value. As a result, statistically significant (+) correlation were observed at the range of 1%, and coefficient and T values were 1.194 and 3.06, respectively. It is observed that there is a positive (+) relationship between the loss of tax carry-over and the value of the enterprise to the large enterprise group. As in the case of other listed companies, the large corporate group also shows that the deficit of tax carry-over is positively evaluated in the capital market for reducing future tax payments.

The analysis results of other variables are as follows. The statistically significant negative (-) correlation between the major shareholder stake and the enterprise value were

observed at the range of 1%. The coefficient and T values were -0.208 and -8.47, respectively. This implies that firms with a large business group are evaluating negative in the capital market as the shareholding ratio of the large shareholder is high. And this means that the market is cautioned against the expansion of the interests of the owner-owner through transactions with related parties.

A statistically significant positive (+) correlation was observed between the credit rating and the enterprise value were observed at the 1% range. The coefficient and the T value were 0.040 and 5.45, respectively. This means that it is positively evaluated for the companies belonging to the large corporate group with high credit rating in the capital market.

Table 3. Analysis of tax loss carry-over and firm value relevance of large-scale enterprise group companies

Variables	TQ	
	Coeff	t-value
<i>INTERCEPT</i>	-2.331	-15.85***
<i>NOL</i>	1.194	3.06***
<i>MSH</i>	-0.208	-8.47***
<i>Credit</i>	0.040	5.45***
<i>Big4</i>	0.023	0.86
<i>SIZE</i>	0.090	18.94***
<i>LEV</i>	0.897	17.31***
<i>OCF</i>	0.001	0.05
<i>ROA</i>	0.070	0.89
$\sum YD$	included	
$\sum IND$	included	
N	2,440	
F-value	56.5**	
Adj R ²	0.302	

*, **, *** is statistically significant within the range of 10%, 5% and 1%, respectively

And the firm size and debt ratio also showed a statistically significant positive correlation with the enterprise value at the 1% range. Also the coefficient values were 0.090 and 0.897, respectively, and T values were 18.94 and 17.31, respectively. Positive correlation between debt ratio and enterprise value is different from other precedents.

This implies that the larger the size and debt ratio of the large enterprise group, the more positive the capital market and this is different from other studies. This is because, in the case of a large-scale enterprise group, even if the debt ratio is high, it can be said that the debt ratio is increased because the repayment is guaranteed through the guarantee of the parent company.

Table 4 shows the results of a review of Research Hypothesis 2, which shows how companies perceive taxable carry-forward deficits as deferred tax assets of large-scale business group companies.

Table 4. Analysis of possibility of deduction of tax loss carry-over and firm value relevance of large-scale enterprise group companies

Variables	TQ	
	Coeff	t-value
<i>INTERCEPT</i>	-2.268	-15.4***
<i>NOL</i>	-0.054	-1.89*
<i>MSH</i>	-0.093	-0.11
<i>Credit</i>	-0.209	-8.51***
<i>Big4</i>	0.037	5.10***
<i>SIZE</i>	0.027	1.03
<i>LEV</i>	0.088	18.42***
<i>OCF</i>	0.898	17.29***
<i>ROA</i>	0.004	0.24
$\sum YD$	included	
$\sum IND$	included	
N	2,440	
F-value	56.5**	
Adj R ²	0.302	

*, **, *** is statistically significant within the range of 10%, 5% and 1%, respectively

As a result, it was observed that the deferred tax asset of the large enterprise group in the capital market was negatively evaluated.

A statistically significant negative (-) correlation was observed between the deferred tax assets and the enterprise value were observed at the 1% range, and coefficient and T value were -0.054 and -1.89, respectively.

It is found that the deferred tax assets of the companies belonging to the large enterprise group are recognized as negative. This is in contrast to previous study (Ko, 2009). This is because the deferred tax asset is considered to have a negative impact on the value of the company because it already paid the past tax.

And also, there were no statistical significant the cross-sectional variables between deferred tax assets and tax loss carry-forwards.

As in the analysis of Table 3, a negative (-) correlation was observed between the stake of the majority shareholder and the enterprise value. And there was a positive (+) correlation between credit rating and firm value, and the size of the firm and the debt - to - equity ratio, also, had positive (+) correlation with the firm value.

CONCLUSION

The purpose of this study is to examine how tax loss carry-over is related to the corporate value of a large-scale enterprise group.

Under the current Korean corporate income tax law, tax loss carryforwards can be carried forward within 10 years, so that future tax savings can be obtained. Thus, managements of the companies can make decisions on asset disposal decisions and mergers by using the tax savings effect of tax loss carryforwards. In addition, tax loss carryforwards is a kind of useful tool to mitigate the trade-off between the profit of financial reporting and the profit of tax reporting by increasing the profit of financial reporting and by reducing the cost of increasing tax reporting.

The tax loss carryforward has a significant impact on the management decision making of the enterprises, especially, companies belonging to a large group of companies. Despite the importance of tax carryforward, there are very few studies related to this. Because tax loss carry-forwards are tax savings, they can increase the present value of future cash flows for companies, it can also positively affect corporate value.

The tax loss carry-over can have a positive effect on the corporate value because it has the effect of reducing the tax cost and can increase the present value of future cash flows of companies. Of course, the tax carry-over is an indicator of poor performance of firms in the past, which could have a negative impact on future profit and firm value.

So, first, this study conducted empirical analysis by setting up a hypothesis to test the relationship between the tax carry - over and the corporate value of a large enterprise group. Second, future feasibility must exist to achieve future tax savings by tax loss carry-over. So among the firms with tax carry - over deficits, the firms that recognized deferred income tax assets and the firms that did not recognize deferred tax assets were analyzed. As a result of the analysis, it is observed that the relationship between the tax carry - over and the enterprise value is positively correlated. Through this, it is confirmed, as other listed companies, tax loss carryforwards of large corporate group companies are also evaluated in a positive way in the capital market.

On the other hand, deferred tax assets of large corporate group companies are considered to be a negative indicator in the capital market. This is because the deferred tax asset is considered to have a negative impact on the value of the company because it already paid the past tax.

And also, there were no statistical significant the cross-sectional variables between deferred tax assets and tax loss carry-forwards.

This study is meaningful in that it is the first study in Korea which directly verifies the relationship between the deficit of tax carry - over and the corporate value of a large - scale enterprise group. As mentioned above, the tax carry - over in taxation has a significant impact on corporate management decision making, and it is also relevant to corporate value. In this point of view, it is an area where various further studies are possible.

However, it is difficult to collect data in measuring tax loss carryforwards. Deferred tax assets are highly probable to be incurred due to other temporary differences even if there is no tax carry-over. Therefore, it is necessary to examine why deferred tax assets have occurred and to analyze and analyze

data. The analysis due to limit was not carried out. This is a limitation of this study and it is necessary to supplement the empirical analysis with additional data collection.

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