

## **The Capital Structure Decision Making Of Business Diversification Firms: Which Factors Are More Important?**

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**ABSTRACT:** *In this study, I analysed and verified which factors are more important for the capital structure decision making of business diversification firms. I included only the diversification firms among the listed firms in the stock market and the KOSDAQ stock market of Korea Exchange in such analyses and verifications. In a bad situation of the world economy, companies are reducing their investment and increasing their cash reserves. Nevertheless, the companies are always interested in broadening their external scales and expanding their business fields to create profits through business diversification. In this situation, in the Korean stock market, it is revealed that the company characteristic variables of the conflict theory and capital procurement order theory gave a significant explanation about the capital structure of firms which have diversified their businesses substantially. The firm characteristic variables of conflict theory and capital procurement order theory have a substantial effect on the capital structure. And, especially, the conflict theory variables have a greater influence on the capital structure. Therefore, the company executives can increase their company values generated from cost reduction and profit generation by good taking into consideration the factors that determine the capital structure even in the profit generation process due to business diversification.*

**KEY WORD:** *Business Diversification, Capital Structure, Leverage*

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### **I. INTRODUCTION AND LITERATURE REVIEW**

Owing to the business enlargement (the merger and acquisition of company and so on) and the aggressive investment (the loan management and so on) which are conducted to survive in the age of infinite competition, companies are exposed to problems such as increasing the profitability, the liquidity and the debt ratio. In a bad situation of the world economy, companies are cutting investment now. However, from the past, companies have been focusing on expanding their business by diversification and on increasing the company size. Before the age of IMF, Korean companies had expanded their business more aggressively. However, after the age of IMF, companies are expanding their business in a conservative manner. As a result, there have been the aspect of contradiction in selecting and concentrating on company diversification. Currently, the researches on Korean company diversification are not studied in depth. In particular, there are not deep researches on the capital structure of firms that have diversified their business.

Researches on company diversification has attracted much attention in domestic and overseas financial academic world. According to the joint insurance effect hypothesis raised by Lewis Allen (1971), diversification firms are said to have different business portfolios, which enlarges the volatility of earnings and thus increases their debt. Therefore, he said that by increasing debt procurement and enlarging the effect of tax savings, the diversification firms come to have higher debt ratios. Stulz (1990) suggested the efficiency hypothesis of internal capital market that diversified firms can allocate resources more efficiently and resolve more easily the under-investment problems, thereby allowing themselves to invest more in net investments greater than zero, by creating the internal capital market that can allocate resources more easily than the external capital markets. According to Wallace (1969), diversification companies can reduce the factor market usage costs more efficiently rather than the companies that perform a single business through the resource distribution, among the business divisions, generated from the transaction internalization using the product diversification. By doing so, the executives of head office can become more interested in the company-wide goals beyond the limits of narrow business divisions like the representatives of shareholder.

As can be seen from this advantage, the product diversification allows companies to make the efficient decisions about the component allocation and to reduce costs through the efficiency gains from the internalization. He argued that the information asymmetry costs, such as the information imbalance between the executives and the business unit managers, are more likely to occur in the diversified firms than the firms focused on information asymmetric cost hypothesis. Also, he said that information is distributed more widely

among diversified firms than specialized ones, leading to even greater information asymmetry costs and to the reduction of the value of diversified firms. Berger and Ofek(1995) found the diversification discount phenomenon that the value of the diversified firm is undervalued, which is interpreted as the company value destruction due to the diversification. Denis et al.(1997) said that the diversification discount is related to the agent issues, which is in line with Jensen's(1986) argument that the managers gain the private benefits through diversification. Rajan et al.(2000) argued that the diversification discounts are related to the inefficiency of the internal capital markets of the diversification firms, and Amihud and Lev(1981) suggested that the managers prefer diversification for the risk avoidance. Also, Campa and Kedia (2002) found that the low-performance firms prefer diversification. Therefore, even in the researches in Korea, it is necessary to empirically analyze the effects of company diversification on the company values in keeping with foreign research trends. If more than one business unit of a diversified firm suffer loss in any year, the diversified firm will pay less tax than each division has to pay in independent operation, they said. In this study, I want to examine how business diversification affects the capital structure. The analysis period of this study is 18 years from 2000 to 2017 excluding the IMF financial crisis period. And, I analyzed 3,574 companies per year as sample data only for the diversified firms listed on Korea Exchange. The data used in this study are cross-sectional data. Therefore, in this study, the problems of the heteroscedasticity and the time series serial correlation data can be seen at the same time. Therefore, in this study, I analyze and construct the panel data that integrates time series and cross sectional data.

## II. INTRODUCTION AND LITERATURE REVIEW

In this study, I analyze the effect of capital structure variables based on the conflict theory and the capital procurement order theory on the market price leverage ratio and the book value leverage ratio. To do this, I set up the regression model like Equation(1).

$$Mlev_t = \beta_0 + \beta_1 MB_t + \beta_2 TANG_t + \beta_3 PROFIT_t + \beta_4 SIZE_t + \beta_5 DEPA_t + \beta_6 DIV_t + \beta_7 RD_t + \beta_8 SGA_t + \beta_9 DEFA_t + \varepsilon_t(1)$$

$$Blev_t = \beta_0 + \beta_1 MB_t + \beta_2 TANG_t + \beta_3 PROFIT_t + \beta_4 SIZE_t + \beta_5 DEPA_t + \beta_6 DIV_t + \beta_7 RD_t + \beta_8 SGA_t + \beta_9 DEFA_t + \varepsilon_t(2)$$

The t-year market price leverage( $Mlev_t$ ) used as a dependent variable in Equation (1) is measured as [(t-year total liabilities) / (t-year total liabilities + t-year total market price of personal capital)], and t-year book value leverage( $Blev_t$ ) is measured as [(t-year total liabilities) / (t-year total assets)]. According to the study results of Rajan and Zingales(1995)'s and Fama and French (2002)'s, the four most commonly used capital structure variables in the conflict theory are the M/B ratio, the tangibility ratio, the profitability ratio, and the firm size.

First, the M/B ratio( $MB_t$ ) is measured as [(t-year total liabilities + t-year total market price of personal capital) / (t-year total assets)] and I expect that it will have a negative impact(-) on the leverage ratio as a growth variable. The tangibility ratio ( $TANG_t$ ) is measured as [(t-year stock assets + t-year tangibility assets) / (t-year total assets)] and I expect it to have a positive effect(+) on the leverage ratio as a collateral value variable. The profitability ratio( $PROFIT_t$ ) is measured as [(t-year EBITDA) / (t-year total assets)] and I expect that it will have a negative impact(-) on the leverage ratio in the opposite direction against the conflict theory anticipation. The firm size( $SIZE_t$ ) is measured as  $\ln$ (t-year total assets), and I expect it to have a positive effect(+) on the leverage ratio. The depreciation cost ratio( $DEPE_t$ ) is measured as [(t-year depreciation costs) / (t-year total assets)] and I expect it to have an negative effect(-) on the leverage ratio as a variable representing the non-debt tax shield effect. The allocation ratio( $DIV_t$ ) is measured as [(t-year allocation amounts) / (t-year total assets)], and I expect it to have a negative impact(-) on the leverage ratio according to the study of Fama and French(2002). The R & D cost ratio is measured as [(t-year R & D costs) / (t-year total assets)], and it is also calculated as [(t-year R & D costs) = (t-year asset processing development costs) + (t-year expenditure processing development costs) + (t-year research costs)]. The sales and general administration costs ratio( $SGA_t$ ) is measured as [(t-year sales and general administration costs) / (t-year total sales)] and I expect that it will have a negative impact(-) on the leverage ratio significantly. The financial deficit ratio( $DEFA_t$ ) is the capital structure variable used by Frank and Goyal(2003) to test the capital procurement order theory, and I expect that it will have a positive effect(+) on the leverage ratio. And the financial deficit ratio( $DEFA_t$ ) is measured as [(t-year cash allocations + t-year net investments + t-year net working capital changes - t-year interest and after-tax operating cash flows) / t-year total assets], according to the measurement method of Frank and Goyal(2003). Among the detail items, the t-year cash allocations( $DIV_t$ ) is measured as (t-year cash allocation payments) in the cash flow statement, and the t-year net investments( $I_t$ ) is calculated by (t-year cash outflows due to investment activities - t-year cash inflows

due to investment activities) in the cash flow statement. The t-year net working capital changes( $\Delta WC_t$ ) is measured as (t-year net working capitals -(t-1)-year net working capitals), and t-year net working capitals is measured as (t-year current assets – t-year current liabilities) in the balance sheets. And t-year interests and after-tax operating cash flows are measured in the income statements as (t-year operating profits + t-year depreciation costs - t-year interest costs – t-year income tax costs). In this study, I set up the panel model such as Equation(3) and Equation(4) to analyze the effect of the capital structure variables on the market price leverage ratios and book value leverage ratios for the conflict theory and capital procurement order theory in the aspect of the robustness test.

$$Mlev_t = \beta_0 + \beta_1 MB_t + \beta_2 TANG_t + \beta_3 PROFIT_t + \beta_4 SIZE_t + \beta_5 DEPA_t + \beta_6 DIV_t + \beta_7 RD_t + \beta_8 SGA_t + \beta_9 DEFA_t + \mu_1 + \pi_t(1)$$

$$Blev_t = \beta_0 + \beta_1 MB_t + \beta_2 TANG_t + \beta_3 PROFIT_t + \beta_4 SIZE_t + \beta_5 DEPA_t + \beta_6 DIV_t + \beta_7 RD_t + \beta_8 SGA_t + \beta_9 DEFA_t + \mu_1 + \pi_t(2)$$

### III. DATA AND DESCRIPTIVE STATISTICS

In this study, I select the sample ones from listed companies on the stock market of Korea Exchange from January 1, 2000 to December 31, 2017, excluding the 1997 IMF crisis periods. First, I exclude the companies of which I was not able to obtain the financial and stock data from January 1, 2000 to December 31, 2017 in the KIS Value Library, FnGuide and TS2000. And I exclude the banking, the securities, the insurance, and other financial sectors from the samples because they differ from general manufacturing firms in the capital structure, the business method, and the government regulation supervision and so on. Also, during the analysis period, I exclude the delisted companies from the sample firms. In the analysis period, the merged firms or the controlled firms are excluded from the sample firms because they have the deficits in the financial data continuity. In addition, I exclude the firms, whose total assets are less than one billion won or who has no sales, from the samples because they are likely to generate the variable abnormalities. In order to control the effect of the abnormalities on the analysis results, 1% of the top and bottom of each variables are winsorized.

I categorize all the sample firms as the diversified firms and non diversified ones. The diversified firm is defined as the firm with at least two business units that belong to the different standard industry classification codes(SIC codes). And, the firms that do not belong to the diversified firms are classified as non diversified ones. The number of firms per year in the sample ones satisfying the above condition is 3,594.

Table 1 shows the basic statistics such as the mean values, the standard deviation values, the median values, the minimum and maximum values for the characteristic variables of sample firms. These variables are used to estimate the determinants of the capital structure of business diversification firms.

As a result of the analysis, the average of market price leverage ratio(Mlev) is 51.13%, which is larger than the 49.48% average of median values and ranged from 0.15% to 99.82%. On the other hand, the average of book price leverage ratio(Blev) is 46.83%, which is lower than the 47.11% of median value, ranging from 0.06% to 99.90%. The average of the M/B ratio(MB), the profitability ratio(PROFIT), the firm size(SIZE), the depreciation cost ratio(DEPA), the allocation ratio(DIV), the R & D cost ratio(RD), the sales and general management ratio(SGA) and the financial deficit ratio(DEFA) are all above median value. However, the average of the tangibility ratios(TANG) is smaller than the median value. Thus, most firm characteristic variables do not show large differences in the mean and median values, and even the standard deviation values are relatively small. Also, as a result of examining the minimum and maximum values, there is no concern about the data stability that can be caused by the extreme values in the analysis.

Table 2 shows the correlation between the variables and the analysis results for multicollinearity. First, the M/B ratio(MB), the profitability ratio(PROFIT), the depreciation cost ratio(DEPA), the allocation ratio(DIV), the R & D cost ratio(RD), and the sales and general management ratio(SGA) have a significant negative effect on the market price leverage ratio(Mlev) and the book value leverage ratio(Blev) at 1 to 5 % level. In addition, the tangibility ratio(TANG), the firm size(SIZE) and the financial deficit ratio(DEFA) have a significant positive effect on the market price leverage ratio(Mlev) and the book value leverage ratio(Mlev) at 1 to 5% level. In addition, there is a significant correlations between the independent variables. However, because the absolute value of the correlation coefficients excluding the market price leverage and the book value leverage do not exceed the value of 0.5, we need not be concerned about the multicollinearity(Kennedy,1992). As a result of an additional test for multicollinearity by measuring the variance inflation factors (VIFs) for each variable, the VIF values of all variables are between 1.00 and 1.20, which are less than the level of statistical multicollinearity criterion(Neter et al., 1990). Therefore, there is no concern about the frequent multicollinearity problems occurring in the regression analysis using the financial variables.

**Table 1: Basic statistical analysis**

Variables		Mean	Standard Deviation	Minimum	Maximum	Median
<i>MLEV</i>	Market Price Leverage	0.5113	0.2515	0.0015	0.9982	0.4948
<i>Blev</i>	Book Value Leverage	0.4683	0.2012	0.0006	0.9990	0.4711
<i>MB</i>	M/B Ratio	0.8814	0.3265	0.3250	1.9992	0.8153
<i>TANG</i>	Tangibility Ratio	0.4607	0.1942	0.0009	0.9002	0.4696
<i>PROFIT</i>	Profitability Ratio	0.0698	0.0870	-0.2953	0.3966	0.0690
<i>SIZE</i>	Firm Size	25.5029	1.6897	18.8036	32.0908	25.2820
<i>DEPA</i>	Depreciation Cost Ratio	0.0049	0.0071	0.0001	0.0889	0.0024
<i>DIV</i>	Allocation Ratio	0.0126	0.0104	0.0001	0.0981	0.0102
<i>RD</i>	R & D Cost Ratio	0.0068	0.0087	0.0001	0.0945	0.0060
<i>SGA</i>	Sales and Administration Ratio	0.1655	0.1472	0.0021	0.9850	0.1120
<i>DEFA</i>	Financial Deficit Ratio	0.0588	0.2523	-0.4742	0.7621	0.0572

**Table 2: Correlation analysis**

Division	<i>MLEV</i>	<i>Blev</i>	<i>MB</i>	<i>TANG</i>	<i>PROFIT</i>	<i>SIZE</i>	<i>DEPA</i>	<i>DIV</i>	<i>RD</i>	<i>SGA</i>	<i>DEFA</i>	<i>VIFs</i>
<i>MLEV</i>	1											
<i>Blev</i>	0.673**	1										
<i>MB</i>	-0.493**	-0.045**	1									1.16
<i>TANG</i>	0.026**	0.015*	-0.057**	1								1.01
<i>PROFIT</i>	-0.158**	-0.164**	0.079**	-0.018	1							1.11
<i>SIZE</i>	0.333**	0.052**	0.179**	0.034*	0.096**	1						1.06
<i>DEPA</i>	-0.101*	-0.041*	0.151**	-0.053**	0.042*	-0.040*	1					1.04
<i>DIV</i>	-0.382**	-0.288**	0.276**	-0.029	0.305**	0.149**	0.125**	1				1.20
<i>RD</i>	-0.122**	-0.027**	0.167**	0.021*	-0.062**	0.006	0.020	0.013*	1			1.04
<i>SGA</i>	-0.029*	-0.025*	-0.024	0.031*	0.006**	0.021*	-0.031	-0.006	-0.022	1		1.00
<i>DEFA</i>	0.009*	0.018*	0.013*	0.022*	0.001**	-0.010	-0.026*	0.001*	0.001	0.006	1	1.00

#### IV. EMPIRICAL RESULTS

In this study, I examine which factors affect the capital structure of the business diversification firms. Also, I investigate the determinants of market price leverage and book value leverage. In addition, I want to conduct the panel analysis by confirming the existence of the enterprise characteristic effect and the time characteristic effect in the view of conducting the robustness test. A diversified firm is defined as a firm with at least two business units that belong to different standard industry classification codes(SIC codes). And, such companies that do not belong to diversified firms are classified as non diversified ones. In this study, I conduct an empirical analysis only for the diversified firms.

**Table 3: Determinants of market price leverage ratio**

Variables	Symbol	Entire Analysis Period		
		Model 1	Model 2	Model 3
Constants	$\beta_0$	0.969*** (64.48)	0.967*** (65.73)	0.542*** (115.74)
$MB_t$	$\beta_1$	-0.169*** (-31.25)	-0.142*** (-25.84)	
$TANG_t$	$\beta_2$	0.007*** (9.56)	0.004*** (5.37)	
$PROFIT_t$	$\beta_3$	-0.292*** (-7.15)	-0.115*** (-2.80)	-0.466*** (-9.63)
$SIZE_t$	$\beta_4$	0.010*** (17.39)	0.009*** (16.79)	
$DEPA_t$	$\beta_5$		-1.046* (-1.69)	
$DIV_t$	$\beta_6$		-1.796*** (-15.67)	
$RD_t$	$\beta_7$		-0.605*** (-4.19)	
$SGA_t$	$\beta_8$		-0.011* (-1.88)	-0.015* (-1.82)
$DEFA_t$	$\beta_9$		0.004* (1.75)	-0.005* (-1.78)
number of observation		3,594	3,594	3,594
number of company		315	315	315
$Adjusted - R^2$		0.3143	0.3622	0.1253
$F - value$		412.69***	227.67***	132.07***

The interior number of ( ) represents the t-value using the modified standard error of White (1980), and \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels(both), respectively.

I will review the determinants of market price leverage ratio in Table 3. First, the M/B ratio( $MB$ ), which is a growth variable, has a significant negative effect on the market price leverage ratio at 1% level. This is in agreement with the finding of Titman and Wessels (1988) that companies reduce the debt issuance to avoid the under-investment problem and the asset substitution problems caused by the agent conflicts. The tangibility ratio( $TANG$ ) has a significant positive effect on the market price leverage ratio( $Mlev$ ) at the 1% level. This is in agreement with the study of Stulz and Johnson(1985) that the collateral value of certain firm increases as the collateral assets increase more, and the firm value increases as the firms can mitigate the under-investment problems by obtaining the mortgage loan. The profitability ratio( $PROFIT$ ) has a significant negative impact on the market price leverage ratio( $Mlev$ ) at the 1% level. This is consistent with the capital procurement order theory (Jensen, 1986), which suggests that the firms of higher profitability have less liabilities because they use their internal capital more easily. The firm size( $SIZE$ ) has a significant positive effect on the market price leverage ratio( $Mlev$ ) at 1% level. This is consistent with the finding of Booth et al.(2001) : As the firm size becomes large, the firm is more diversified and their profitability becomes greater. So their debt acceptance capability becomes greater because of less exposure to the external risks. In the expansion model, the depreciation cost ratio( $DEPA$ ) has a significant negative effect(-) on the market price leverage ratio( $Mlev$ ) at the 10% level. This is consistent with the findings of Fama and French (2002) that the firms with the non-debt tax cutting effect have negative effects on the leverage ratios because they can not use all of the effects of non-debt tax cutting effect if they issue debt. The allocation ratio( $DIV$ ) has a significant negative effect(-) on the market price leverage ratio( $Mlev$ ) at the 1% level. This is the same as that of Fama and French (2002). The R & D cost ratio( $RD$ ) has a significant negative(-) effect on the market price leverage ratio( $Mlev$ ). This means that the high-growth companies prefer the capital acquisition over debt for the R&D expenditures belonging to the intangible assets to generate the sustainable revenue. This is consistent with the study results of capital procurement order theory and those of Frank and Goyal(2009) that the increase in operating expenses, required to maintain the basic activities and the sales activities such as salaries, welfare benefits, has a negative impact(-) on the leverage. The financial deficit ratio( $DEFA$ ) has a significant positive effect(+) on the market price leverage ratio at the 10%

level. This is in line with the findings of Myers and Majluf (1984) that companies will prefer to issue the new debt rather than issue the new stocks if the investment is outsourced, considering the reverse selection costs under the asymmetric information. The variables of model 1 conflict theory, the variables of model 2 conflict theory and capital procurement order theory, and the variables of model 3 capital procurement order theory all have a significant effect on the leverage. Therefore, the companies that have diversified their businesses will be able to increase their company values by reducing costs and increasing profits, taking into consideration the factors that determine the capital structure, even in the process of expanding profit and outsourcing.

I will review the determinants of the book value leverage ratio in table4. The M/B ratio(*MB*) and the profitability ratio(*PROFIT*), which are the growth variables in the basic and expansion model, have a significant negative effect on the book value leverage ratio(*Blev*) at a 1% level. In addition, the tangibility ratios(*TANG*) and the firm size(*SIZE*) have a significant positive effect on the book value leverage ratio at 1 to 10% level. In the expansion model, the depreciation cost ratio(*DEPA*) is not significant, and the allocation ratio(*DIV*), R & D cost ratio(*RD*), and the sales and general management cost ratio(*SGA*) have a significant negative effect at 1 to 10% level. On the other hand, the financial deficit ratio(*DEFA*) was not significant. These result are similar to the determinants of the market price leverage ratio in Table 3.

**Table 4: Determinants of book value leverage**

Variables	Symbol	Entire Analysis Period		
		Model 1	Model 2	Model 3
Constants	$\beta_0$	0.516*** (32.34)	0.512*** (32.88)	0.497*** (118.97)
<i>MB<sub>t</sub></i>	$\beta_1$	-0.023*** (-4.08)	-0.052*** (-8.97)	
<i>TANG<sub>t</sub></i>	$\beta_2$	0.015* (1.71)	0.011* (1.87)	
<i>PROFIT<sub>t</sub></i>	$\beta_3$	-0.433*** (-9.98)	-0.226*** (-5.19)	-0.433*** (-10.02)
<i>SIZE<sub>t</sub></i>	$\beta_4$	0.001*** (2.97)	0.001* (1.78)	
<i>DEPA<sub>t</sub></i>	$\beta_5$		-0.922 (-1.37)	
<i>DIV<sub>t</sub></i>	$\beta_6$		-1.683*** (-17.11)	
<i>RD<sub>t</sub></i>	$\beta_7$		-0.508*** (-3.33)	
<i>SGA<sub>t</sub></i>	$\beta_8$		-0.011* (-1.76)	0.011 (1.58)
<i>DEFA<sub>t</sub></i>	$\beta_9$		0.007 (0.96)	0.009 (1.11)
number of observation		3,594	3,594	3,594
number of company		315	315	315
Adjusted – R <sup>2</sup>		0.2321	0.2092	0.0973
F – value		260.78***	231.92***	104.65***

The interior number of () represents the t-value using the modified standard error of White (1980), and \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels(both), respectively.

Table 5 represents the model of fixed effect and random effect through the statistical test procedures such as Lagrange Multiplier Test and the Hausman Test which are conducted in terms of the robustness test for the leverage decision factors. Chamberlain and Griliches (1984) argued that the fixed effect model has an advantage that no bias occurs in the estimation results even if there is a correlation between the missing variable and the independent variable. First, I confirm the presence of firm characteristic effect( $\mu_t$ ) and time characteristic effect( $\pi_t$ ) through the Lagrange Multiplier Test proposed by Breusch and Pagan(1980). Then, I confirm the fitness of fixed effect model and probability effect model through HausmanTest(Hausman, 1978).

In Table 5, I will examine the determinants of market price leverage ratio and book value leverage ratio in terms of the robustness tests for Table 3 and Table 4. The analysis results are as follows. The M/B ratio(*MB*), the profitability ratio(*PROFIT*), the depreciation cost ratio(*DEPA*), the allocation ratio(*DIV*), the R & D cost

ratio(RD), and the sales and general management cost ratio(SGA) have a negative(-) effect on the market price leverage ratio(Mlev) at 1 to 10% levels. And, the tangibility ratio(TANG), the firm size(SIZE), and the financial deficit ratio(DEFA) have a significant positive effect(+) on market price leverage ratio(Mlev) at 1 - 10% level. As a whole, this results are consistent with the results of Table3. The results of book value leverage ratio(Blev) are even similar to those of market price ratio(Mlev), but the depreciation cost ratio(DEPA) and the financial deficit ratio(DEFA) are not significant. Nevertheless, the results are generally consistent with the results of Table 4.

**Table 5: Robustness test for leverage determinants**

Division	Symbols	Market price leverage		Book value leverage	
		Basic model	Expansion model	Basic model	Expansion model
Constants	$\beta_0$	0.963*** (60.53)	0.955*** (60.35)	0.530*** (37.00)	0.519*** (35.72)
MB <sub>t</sub>	$\beta_1$	-0.166*** (-33.43)	-0.159*** (-31.98)	-0.032*** (-5.99)	-0.039*** (-7.35)
TANG <sub>t</sub>	$\beta_2$	0.010*** (6.53)	0.010*** (0.98)	0.001* (1.70)	0.002* (1.69)
PROFIT <sub>t</sub>	$\beta_3$	-0.195*** (-5.86)	-0.157*** (-4.74)	-0.306*** (-8.54)	-0.268*** (-7.52)
SIZE <sub>t</sub>	$\beta_4$	0.010*** (19.97)	0.009*** (19.25)	0.002*** (5.07)	0.002*** (4.31)
DEPA <sub>t</sub>	$\beta_5$		-1.295* (-1.83)		-1.128 (-1.55)
DIV <sub>t</sub>	$\beta_6$		-1.013*** (-8.27)		-1.290*** (-8.16)
RD <sub>t</sub>	$\beta_7$		-0.559*** (-4.05)		-0.691*** (-4.61)
SGA <sub>t</sub>	$\beta_8$		-0.007* (-1.73)		-0.002 (-1.44)
DEFA <sub>t</sub>	$\beta_9$		0.017** (2.04)		0.008 (1.47)
number of observation		3,594	3,594	3,594	3,594
number of company		315	315	315	315
R <sup>2</sup> – Within		0.3580	0.3725	0.1366	0.1685
R <sup>2</sup> – Between		0.2977	0.3289	0.1238	0.1631
R <sup>2</sup> – Overall		0.3140	0.3427	0.1293	0.1636
Lagrange Multiplier Test		6867.85***	5805.36***	6930.40***	5898.59***
Hausman Test		7.22	13.96	21.68***	29.70***
F – Test				136.08***	164.71***
Z – Test		1956.12***	2116.43***		

The interior number of () of book value leverage represents the t-value using the modified standard error of White and the interior number of () of market price leverage represents the z-value using the modified standard error of White. \*\*\*, \*\*, \* indicate significance at the 1%, 5%, and 10% levels(both), respectively.

## V. CONCLUSION AND DISCUSSION

In this study, I analysed and verified which factors are more important for the capital structure decision making of business diversification firms. In such analyses and verifications, I included only the diversification firms among the listed firms in the stock market and the KOSDAQ stock market of Korea Exchange from January 1, 2000 to December 31, 2017. The main results of this study are as follows.

The capital structure variables related to the conflict theory and capital procurement order theory were found to have important effects on the market price leverage ratios and book value leverage ratios of the business diversification firms. The M/B ratio has a significant negative effect(-) on the leverage ratio as a growth opportunity variable, and the tangibility ratio has a significant positive impact(+) as a collateral value. In addition, the profitability ratio has a significant negative effect(-), and the firm size has a significant positive effect(+). Also, the depreciation cost ratio, the allocation ratio, the R & D cost ratio, the sales and general management ratio have a significant negative effect(-), and the financial deficit ratio has a significant positive effect(+). And, even in the analysis considering the resistance quality for the robustness test, the capital structure variables related to the conflict theory and the capital procurement order theory were found to have significant effects on the market price leverage ratio and book value leverage ratio of the business diversification firms.

Also, the research results were found to be similar.

Conclusively, in a bad situation of the world economy, companies are reducing their investment and increasing their cash reserves. Nevertheless, the companies are always interested in broadening their external scales and expanding their business fields to create profits through business diversification. In this situation, in the Korean stock market, it is revealed that the company characteristic variables of the conflict theory and capital procurement order theory gave a significant explanation about the capital structure of firms which have diversified their businesses substantially. The firm characteristic variables of conflict theory and capital procurement order theory have a substantial effect on the capital structure. And, especially, the conflict theory variables have a greater influence on the capital structure. Therefore, I think that the company executives can increase their company values generated from cost reduction and profit generation by good taking into consideration the factors that determine the capital structure even in the profit generation process due to business diversification. However, in this study, I analyzed only the firms listed on the stock market and the KOSDAQ stock market of Korea Exchange and only the firms that meet the strict sampling selection criteria. Therefore, there are many limitations in generalizing the interpretation of the results of this study. In addition, it is necessary to supplement the variables affecting the decision of capital structure, to diversify sample analysis, and to broaden the analytical techniques for more precise research.

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