

## The Effects of Employee Benefits at Diversified Enterprises on Capital Structure

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**Abstract:** This study empirically analyzes the effects of employee benefits on capital structure, focusing on diversified companies. A significant negative (-) effect occurred between the market leverage and the book leverage, which is in line with the theory of labor discipline effect, indicating that an increase in debt leads to a decrease in employee benefits. It further signifies that the increase in the liability of the enterprise results in the transfer of risks by reducing employee wages with the rise of the risk of the owner and that the increase in liability is used as a tool to gain superiority in wage negotiations. However, it is contrary to the efficiency wage theory that debt growth leads to higher wages. The market price leverage has a significant negative (-) effect on employee benefits both before and after the financial crisis, and this is consistent with the results of lower-wage increases resulting from debt growth. Furthermore, a rapid economic change means more focused on corporate policies, i.e., cost-saving policies, such as employee benefits, and using liabilities as a means of negotiating wages with employees. In addition, both chaebol and non-chaebol enterprises have shown that market price leverage and book leverage have a significant negative (-) effect on employee benefits, which can be said to be much less sensitive to employee benefits even if large firms increase their debt ratios than smaller firms. It is consistent with the result of reduced wage increases due to debt increases, and further signifies that the rapid economic change focuses more on corporate policies, such as cost-saving policies as employee benefits, and uses liabilities as a means of wage negotiation with employees.

**Keywords:** Employee benefits, capital structure, diversified enterprise, efficiency wage theory

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### I. Introduction and Literature Review

Labor costs are a large part of the expenses in enterprises and are one of the key considerations when hiring and investing. In recent years, Korea's employment rate has been declining due to the burden of rising labor costs with respect to labor reform and increasing minimum wages. Despite the significant impact on this experimental society and corporate policy, research on labor costs and capital structures is relatively insufficient. The enterprise capital structure has important practicality in financial theory, and most of the current studies on the determinants of capital structure and the adjustment of the debt ratio to the capital structure have been conducted in various ways. The purpose of this study is to compare and analyze the effect of employee benefits on the capital structure of the enterprises that have diversified. In studies related to enterprise diversification, companies are currently reducing their investments in the weak global economy; however, in the past, companies have focused on expanding their business by increasing their size by diversification. As a business grows from a conservative approach, enterprise diversification also has a conflict in terms of choice and concentration. There are not many researches on enterprise diversification of Korean companies, and in particular, in-depth analysis of the capital structure of diversified enterprises has not been conducted. In studies by Chemmanur et al. (2013), as well as Brown and Matsa (2016) suggest that when unemployment risks increase due to the increase of corporate debt, firms use wages and incentives to address performance instability. It can be said to be a positive relationship between the risk of losing jobs and the workers' wages through the efficiency wage theory. Topel (1984) stated that the higher the fear of unemployment, the higher salary, and Li (1986) reported that more than 20% of the wage gap was due to anxiety about unemployment and risk of unemployment an analysis of the industry. Besides, Becker (1975) noted that because the human capital of an enterprise cannot be carried by a worker, workers who invest in the human capital have to bear relatively higher switching costs than ordinary employees when they lose their jobs, which would require companies to compensate for higher wages. Brown and Matsa (2016)'s study looked into the extension of the efficiency wage theory, which is substantial evidence of the link between corporate policy and labor. This study examines the effect of employee benefits on the capital structure of a diversified enterprise. The analysis period will be set for a total of 18 years from 2000 to 2017, and among companies listed on the Korea Exchange, 3,549 companies-

years will be analyzed with sample data only for diversified enterprises. The data used in this study is that of cross-sectional, in which dichotomy problems and problems of series correlation can coincide, and panel data incorporating time series and cross-sectional data are analyzed.

## II. Models and Variables

In this study, a regression model of Equation (1) and Equation (2) are established to analyze the effects of employee benefits on the market and book leverages.<sup>1</sup>

$$\text{EmployeePay}_t = \beta_0 + \beta_1 \text{MarketLeverage}_t + \beta_3 \text{MarketBook}_t + \beta_4 \text{Tangibility}_t + \beta_5 \text{PProfitability}_t + \beta_6 \text{FirmSize}_t + \beta_7 \text{EmployeeService}_t + \beta_8 \text{Shareholder}_t + \varepsilon_t \quad (1)$$

$$\text{EmployeePay}_t = \beta_0 + \beta_2 \text{BookLeverage}_t + \beta_3 \text{MarketBook}_t + \beta_4 \text{Tangibility}_t + \beta_5 \text{PProfitability}_t + \beta_6 \text{FirmSize}_t + \beta_7 \text{EmployeeService}_t + \beta_8 \text{Shareholder}_t + \varepsilon_t \quad (2)$$

The t-year employee benefit ( $\text{EmployeePay}_t$ ) used as the dependent variable in Equation (1) is measured as [(t-year employee benefit total) / (natural logarithm of the total number of employees)]. In the study by Chemmanur et al. (2013), the average wage per employee was calculated by dividing the labor expense item in the financial statements by the total number of employees. As an explanatory variable, t-year market leverage ( $\text{MarketLeverage}_t$ ) is measured as [(t-year debt total) / (t-year debt total + t-year equity market cap)] and t-year book leverage ( $\text{BookLeverage}_t$ ) is measured in [(t-year total liabilities) / (t-year total assets)], and both explanatory variables are expected to have a negative effect on employee benefits. As a control variable, the t-year MB ratio ( $\text{MarketBook}_t$ ) is measured at [(t-year debt total + t-year total of equity capital)/(t-year total)], and the t-year tangibility ratio ( $\text{Tangibility}_t$ ) is measured at [(t-year debt total + t-year total of equity capital)/(t-year total)], and the t-year tangibility ratio ( $\text{Tangibility}_t$ ) is expected to have a negative impact on employee benefits, and t-year profitability ( $\text{PProfitability}_t$ ) is measured at [(t-year EBITDA)/(t-year total assets)], and is expected to have a positive (+) effect on employee benefits. The t-year firm size ( $\text{SIZE}_t$ ) is measured at  $\ln(\text{t-year total assets})$  and is expected to have a positive (+) effect on employee benefits. The t-year employee service years ( $\text{EmployeeService}_t$ ) is measured by the average of t-year employee service years and is expected to have a positive (+) effect on employee benefits. The t-year ratio of ordinary shares held by the majority shareholders is measured by the ratio of majority shareholders (more than 3% owned) and the related parties ( $\text{Shareholder}_t$ ) in the period of t years, and is expected to have a positive (+) effect on employee benefits. In the estimation of Equations (1) and (2), the form of wage payment may be different for each enterprise, so an enterprise dummy and a year dummy were added to control this problem. The clustered standard error estimation method was used, and enterprise-specific clustering was performed as convenience was likely to arise due to the interrelationship and dichotomy between residuals. According to Petersen (2009), for panel data with large cross-section and short time series, more accurate standard errors were calculated when the cross-sectional objects were clustered in the standard error calculation of the regression coefficients.

## III. Data and Descriptive Statistics

In this study, sample companies are selected from the companies listed on the Korea Exchange from January 1, 2000, to December 31, 2017, based on the following criteria. First, companies whose financial and stock data are not available from KIS Value Library, FnGuide, and TS2000 from January 1, 2000, to December 31, 2017, were excluded from the sample entity. The financial industries, as well, such as banks, securities, and insurance, were excluded because they are different from the sample entity in terms of capital structure, operating methods, and government regulatory oversight. Also, the companies that de-listed, merged, or became a control target during the analysis period are excluded from the sample entity because of problems with the continuity of the financial data. Enterprises with an asset total less than 1 billion won or no sales may generate outliers for variables, excluding them from the sample entity, and winsorizing the upper and lower 1 percent of each variable to control the effect of outliers on the analysis results. The entire sample enterprise is classified as either diversified or non-diversified according to their diversification status. A diversified enterprise is defined as an enterprise that has at least two units belonging to different Standard Industrial Classification codes (SIC Codes), and an enterprise that does not is classified as a non-diversified enterprise (Tong, 2011). The number of company-years of diversified companies that meet the above criteria is 3,594.

<Table 1> examines the probability distribution characteristics and outliers of variables through basic

<sup>1</sup>To simplify the model and the variables, the bottom suffix (t) representing the year is indicated, and the bottom suffix (i) of the entity is omitted.

statistics on the characteristics of diversified firms. In the analysis of basic statistics of diversified companies, the average (median) of market value leverage ratio is 51.13% (49.48%), the average (median) of book leverage ratio is 46.83% (47.11%), and the average (median) of MB ratio is 0.8814 (0.8153), the average (median) of the tangible proportions is 46.07% (46.96%), the average (median) of the profitability ratios is 6.98% (6.90%), and the average (median) of the firm size is 25.5029 (25.2820) The mean (median) of employee average working years was 7.015 (6.286), and the average (median) of the largest shareholder and related party common stock was 42.87% (41.75%). This resulted in a probability distribution with no significant difference in means and medians, and no data that appeared to be anomalous, indicating that the sample was highly reliable, and the Variance Inflation Factors (VIFs) were measured individually for the regression coefficients of the variables and were distributed within the statistically acceptable range (1.08–1.59). Therefore, this study does not concern the multi-pronged issues that are often encountered in regression analyses using financial variables.

<Table 1> Basic Statistics Analysis

Variable		Observed No.	Average	Mean	StDev
EmployeePay	Employee payment	3,594	40.6352	38.9518	12.7436
MarketLeverage	Market leverage	3,594	0.5113	0.4948	0.2515
BookLeverage	Book leverage	3,594	0.4683	0.4711	0.2012
MarketBook	MB ratio	3,594	0.8814	0.8153	0.3265
Tangibility	Tangibility ratio	3,594	0.4607	0.4696	0.1942
PRofitability	Profitability ratio	3,594	0.0698	0.0690	0.0870
FirmSize	Firm size	3,594	25.5029	25.2820	1.6897
EmployeeService	Employeeserviceyears	3,594	7.0155	6.2868	3.7609
Shareholder	The ratio of ordinary shares held by the majority shareholders and related parties	3,594	0.4287	0.4175	0.1725

#### IV. Empirical Results

This section analyzes the effects of employee benefits on debt ratios for diversified enterprises in a variety of ways. <Table 2> shows the result of analyzing the effect of employee benefits on the debt ratio of diversified enterprises. Market leverage and book leverage have shown that employee benefits have a significant negative (-) effect, which is in line with the efficiency wage theory, indicating that an increase in debt leads to a decrease in employee benefits. This finding is also in line with the results of Hovakimian and Li (2011), which means that the increased liabilities by the enterprise signify the increased risk by the owner increases the employee's wages, thereby transferring the risk, and expanding the enterprise liabilities to be used to gain the upper hand in wage negotiations with the employee. However, Brown and Matsa (2016) suggested that the increase in debt would lead to higher wages. The growth opportunity variable, the market-to-market ratio (M/B), is a mixture of negative impact at the 1% level on employee benefits and adverse effects on the employee benefits, and the tangible rate (TANG) affects a significant amount (+) at the 10% level, and the profitability ratio (PRITF), and the employee size average at the 1% level of the employee benefits.

<Table 2> Impact of Employee Benefits on the Liability Ratio of Diversified Enterprises

Variable	Symbol	Diversified Enterprise			
		Model1	Model2	Model3	Model4
Constant	$\beta_0$	3.862*** (0.000)	3.849*** (0.000)	3.440*** (0.000)	3.438*** (0.000)
MarketLeverage	$\beta_1$	-0.106*** (0.006)		-0.133*** (0.004)	
BookLeverage	$\beta_2$		-0.145*** (0.003)		-0.179*** (0.002)
MarketBook	$\beta_3$			-0.015*** (0.008)	0.007 (0.315)
Tangibility	$\beta_4$			0.124* (0.058)	0.126* (0.067)
PRofitability	$\beta_5$			0.298*** (0.000)	0.295*** (0.000)
FirmSize	$\beta_6$			0.048*** (0.000)	0.050*** (0.001)
EmployeeService	$\beta_7$			0.009*** (0.000)	0.010*** (0.000)

Shareholder	$\beta_8$			0.013 (0.188)	0.014 (0.190)
Observed No.		3,594	3,594	3,594	3,594
Film effect		Yes	Yes	Yes	Yes
Year effect		Yes	Yes	Yes	Yes
Adjusted – R <sup>2</sup>		0.127	0.129	0.183	0.185
F – value		298.36***	302.54***	376.14***	379.54***

The values in parentheses ( ) are the p-values that adjust the correlation between heteroscedasticity and residuals through the company-wide clustering estimation method. \*\*\*, \*\*, \* are statistically significant at 1%, 5%, and 10% levels (both sides) respectively.

<Table 3> shows the impact of employee benefits on the debt-to-equity ratio of a diversified company through Fama-MacBeth regression analysis. The market price leverage and book leverage of diversified companies are both annualized and consistent with the study of Hovakimian and Li (2011), meaning that increased corporate debt means that increased risk by the owner reduces the employee's wages, thereby using the entity's debt growth as a tool to gain the upper hand in employee debt-increasing employee negotiations. However, the increase in debt presented by Brown and Matsa (2016) is contrary to the efficiency wage theory, which leads to a rise in wages.

<Table 3> Impact of Employee Benefits on Debt Ratio in Diversified Companies: Fama-MacBeth Regression

Year	Market Leverage(Mlev)	Book Leverage(Blev)
2000	-0.118	-0.110
2001	-0.126	-0.115
2002	-0.137	-0.119
2003	-0.152	-0.130
2004	-0.111	-0.101
2005	-0.138	-0.118
2006	-0.170	-0.136
2007	-0.138	-0.106
2008	-0.082	-0.072
2009	-0.140	-0.104
2010	-0.141	-0.115
2011	-0.092	-0.071
2012	-0.117	-0.068
2013	-0.148	-0.132
2014	-0.167	-0.150
2015	-0.162	-0.140
2016	-0.138	-0.126
2017	-0.136	-0.131
Average (t – test)	-0.134*** (-12.80)	-0.113*** (-8.62)

The values in parentheses ( ) are the t-test values of the mean coefficients of the regression analysis for each year, and \*\*\*, \*\*, and \* are statistically significant at 1%, 5%, and 10% levels (both sides), respectively.

<Table 4> compares the effects of employee benefits on the debt ratio of the diversified enterprises dividing pre-financial crisis (2000-2007) and post-financial crisis (2010-2017). Both before and after the financial crisis, the market price leverage was found to have a significant negative effect on employee benefits, and the regression coefficient after the financial crisis was greater than the previous regression coefficient. It suggests that the negative relationship between leverage and employee benefits has strengthened due to the worsening profitability and debt growth of enterprises in the global economic recession after the financial crisis. Hanka (1998) and Hovakimian and Li (2011) are consistent with the result of reduced wage increases due to debt growth and mean that a drastic economic change focuses more on corporate policies, such as employee benefits, and uses the liability as a means of negotiating wages with employees. When book leverages were

observed, the market leverage produced results similar to market price leverage.

<Table 4> Effect of Employee Benefits on the Liability Ratio of Diversified Enterprises Before and After the Financial Crisis

Variable	Symbol	Diversified Enterprise			
		Pre Financial Crisis	Post Financial Crisis	Pre Financial Crisis	Post Financial Crisis
Constant	$\beta_0$	3.055*** (0.000)	3.209*** (0.000)	3.058*** (0.000)	3.211*** (0.000)
MarketLeverage	$\beta_1$	-0.125 (0.364)	-0.309*** (0.001)		
BookLeverage	$\beta_2$			-0.122 (0.353)	-0.315*** (0.000)
MarketBook	$\beta_3$	-0.003* (0.088)	-0.007*** (0.001)	-0.005* (0.090)	-0.006* (0.096)
Tangibility	$\beta_4$	0.120* (0.065)	0.135** (0.044)	0.119* (0.062)	0.131** (0.049)
PRofitability	$\beta_5$	0.303*** (0.001)	0.315*** (0.000)	0.305*** (0.001)	0.318*** (0.000)
FirmSize	$\beta_6$	0.024** (0.039)	0.008* (0.068)	0.026** (0.042)	0.009* (0.070)
EmployeeService	$\beta_7$	0.011*** (0.001)	0.007*** (0.000)	0.012*** (0.001)	0.006*** (0.000)
Shareholder	$\beta_8$	0.038 (0.390)	-0.059 (0.176)	0.036 (0.395)	0.057 (0.179)
Observed No.		1,286	2,308	1,286	2,308
Film effect		Yes	Yes	Yes	Yes
Year effect		Yes	Yes	Yes	Yes
Adjusted – R <sup>2</sup>		0.172	0.197	0.199	0.176
F – value		334.18***	351.76***	354.29***	337.56***

The values in parentheses ( ) are the p-values that adjust the correlation between heteroscedasticity and residuals through the company-wide clustering estimation method. \*\*\*, \*\*, \* are statistically significant at 1%, 5%, and 10% levels (both sides) respectively.

<Table 5> provides an analysis of the effects of employee benefits on the debt-to-equity ratio of diversified enterprises by classifying it as chaebol and non-chaebol firms. In both chaebol and non-chaebol firms, market leverage and book leverage were found to have a negative (-) effect on employee benefits, and the regression coefficient of chaebol firms was smaller than that of non-chaebol firms. This shows that non-chaebol companies have lower access to capital markets than chaebol companies, which have higher capital costs such as interest expense, and lower profitability such as operating profit, and that non-chaebol companies have a stronger negative relationship between leverage and employee benefits due to worsening profitability and increased debt than chaebol companies amid the global economic downturn. It can be said that large companies are much less sensitive to employee benefits even if their debt ratios increase than smaller ones. Hanka (1998) and Hovakimian and Li (2011) agree with the findings that the rise in wages from debt growth is reduced, and the rapid economic fluctuations focus more on corporate policies, such as employee benefits, and uses the liability as a means of negotiating wages with employees.

<Table 5> Impact of Employee Benefits on the Debt Ratio of Diversified Enterprises: Chaebols and Non-chaebol:

Variable	Diversified Enterprises			
	Chaebols		Non-chaebols	
Constant	4.756*** (0.000)	4.750*** (0.000)	3.615*** (0.000)	3.617*** (0.000)
MarketLeverage	-0.144*** (0.000)		-0.338*** (0.000)	
BookLeverage		-0.146*** (0.000)		-0.336*** (0.000)
Observed No.	1,050		2,544	
Film effect	Yes		Yes	

Year effect	Yes		Yes	
Adjusted – R <sup>2</sup>	0.276	0.273	0.159	0.161
F – value	508.64***	506.42***	354.18***	353.92***

The values in parentheses ( ) are the p-values that adjust the correlation between heteroscedasticity and residuals through the company-wide clustering estimation method. \*\*\*, \*\*, \* are statistically significant at 1%, 5%, and 10% levels (both sides) respectively.

## V. Conclusions and Discussion

This study empirically analyzes the effect of employee benefits on the debt ratio of diversified companies. Market leverage and book leverage have shown that employee benefits have a significant negative (-) effect, which is in line with the efficiency wage theory, indicating that an increase in debt leads to a decrease in employee benefits. In addition, this means that the increase in a company's debt results in the transfer of risk by reducing employee wages by increasing the risk of owner management and that the increase in the company's debt is used as a tool to gain the upper hand in wage negotiations with employees. However, it is contrary to the theory of compensation wages that debt growth leads to higher wages. Both before and after the financial crisis, market price leverage has been shown to have a significant negative (-) effect on employee benefits, and the negative relationship between leverage and employee benefits has been further enhanced by the worsening profitability and debt growth of companies amid the global recession since the financial crisis. It is consistent with the result of reduced wage increases due to debt increases, and means that the rapid economic change focuses more on corporate policies, such as cost-saving policies such as employee benefits, and uses the liability as a means of wage negotiation with employees. Both chaebol and non-chaebol companies have shown that market value leverage and book value leverage have a significant negative effect on employee benefits. It indicates that non-chaebol companies have lower access to the capital market than chaebol companies, which cause higher capital costs, including an interest expense, and have lower profitability such as operating profit. From these results, it shows that the negative relationship between leverage and employee benefits of non-chaebol companies has been further strengthened than chaebol companies due to the worsening profitability and increased debt in the global economic downturn. It can be said that large companies are much less sensitive to employee benefits even if their debt ratios increase than smaller ones. It is consistent with the result of reduced wage increases due to debt increases, and means that the rapid economic change focuses more on corporate policies, such as cost-saving policies such as employee benefits, and uses the liability as a means of wage negotiation with employees. Consequently, it has been shown that employee benefits of a diversified entity have an important effect on its capital structure in situations in which entities are always interested in expanding the entity's appearance and generating revenue through diversification. Lower corporate profitability means higher debt ratios, which can be seen as an opportunity to curb employees' rising salaries, reduce incentives, and further reduce wages. It is said that large companies have little pay cuts, so it is advantageous to maintain and expand corporate policies. However, since this study was only conducted on diversified companies listed on the stock market of the Korea Exchange and analyzed only those that met the strict sampling criteria, there are many limitations in generalizing the interpretation of the analysis results. Further complementing the variables that affect the capital structure, it is also necessary to expand sample entities and diversify the methods of analysis for more precise research in the future.

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