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The Effect of the CEO Inside Debt on
Earnings Management and Accounting Conservatism

기업의 이연 급여 및 연금이

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Abstract:

I analyze the effect of CEO inside debt, deferred and pension compensation, on accounting qualities such as earnings management and conditional conservatism of a firm based on prior corporate finance researches (Yermack et al. 2007 *JF*, Cassell et al. 2012 *JFE*).

Since CEOs are more likely to invest in less risky projects in order to manage the firm conservatively when substantial amount of debt compensation is included in the compensation package, I further extend this research setting and examine the accounting related issues. I first predict that the increase in CEO inside debt lessens the CEO's incentive to meet the short term performance benchmarks and decrease the excessive earnings management, proxied by the abnormal discretionary accruals. In the same aspect, I also hypothesize that the CEOs are less likely to adopt conservative accounting practice when the ratio of the debt compensation increases in their compensation package.

The main results implies that CEO inside debt, also referred to as debt compensation, plays a significant role in mitigating agency problem as degree of earnings management and accounting conservatism significantly decrease in amount of deferred compensation and pension. The results also infer that CEO inside debt and accounting conservatism works as a substitute factors in corporate governance mechanism.

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I. Introduction

I examine the relation between accounting quality measures such as earnings management and accounting conservatism, with recently newly disclosed managerial compensation which potentially alleviates the shareholder-debtholder conflict and agency costs of debt. In other words, I investigate whether executives' accumulated deferred compensation and defined-benefits pension value affects earnings management and accounting conservatism of a firm. Since these CEO rewarding are largely unsecured long-term claims against firm's assets and have the characteristics that are similar to debt, carefully monitoring the role of debt compensation as one source of corporate governance factors can be an interesting new research field.

Especially as equity compensations such as stock awards, option grants, and restricted stock, are severely blamed for the main culprit of recent financial crisis in the media[1], considering debt compensation as an alternative method of rewarding which acts as a buffer for alleviating agency problem and mechanism for hindering CEO focusing on short-term interest seems also logically plausible. Consistent with this notion, how firm's managerial and financial policy changes due to the CEO inside debt can be worth to research.

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[1] 『The Making of a Daredevil CEO: Why Stock Options Lead to More Risk Taking. July, 2011. Knowledge@Wharton』 and 『How to Fix Executive Compensation, February, 2012. *The Wall Street Journal*』 are the few of the striking examples of article that criticizes the equity compensation.

Jensen and Meckling (1976) analyze the incentive effect of debt holdings by managers, which they term as inside debt. They show that managers with a higher ownership of debt against their own firms have less incentive to engage in asset substitution activities to expropriate debtholders, thereby mitigating agency costs of debt. Recently, Edman and Liu (2011) also further developed theoretical framework of this debt compensation and assert that the structure of compensation is ultimately a lot more important than its level, because it gets to the heart of how managers run companies and create value for shareholders. Surprisingly, numerous world widely known firms seem to know this fact and the anecdotic evidence presented in Table 1 supports this notion as well.

Table 1: Compensation Composition for Top Market Value Firms

(2010 Total Aggregate Year End Balance, thousands USD)

Company Name	Market Value (millions USD)	Debt Compensation		Equity Compensation		
		Deferred Compensation	Pension	Option Awards	Stock Awards	(Yearly) Current Compensation
PEPSI INC.	103,286,730	10,432	9,911	3,508	6,000	1,300
HEWLETT-PACKARD CO.	92,651,872	264	52	0	9,883	1,122
QUALCOMM INC.	72,753,590	10,759	0	5,392	6,983	1,154
UNITED PARCEL SERVICE INC.	72,071,940	804	5,089	438	7,799	1,000
WALT DISNEY CO.	62,787,390	3,731	11,954	4,400	7,359	2,000
HOME DEPOT INC.	59,677,710	373	0	2,625	4,375	1,057
DU PONT	45,755,423	2,208	8,340	2,167	4,701	1,300
COLGATE-PALMOLIVE CO.	39,771,095	152	21,200	3,905	5,483	1,150
TIME WARNER INC.	35,354,830	3,993	1,975	4,074	5,519	2,000
NIKE INC.	35,031,920	3,868	0	3,510	3,500	1,475
AVERAGE	61,914,250	**3,658**	**5,852**	3,002	6,160	1,356

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All the compensation schemes other than current compensation are shown in aggregate year-end balance of 2010. As of 2010, many of the world's largest corporations are including debt compensation in their CEO compensation package along with equity compensation such as stock options, bonus, and salary. The increase of debt compensation's proportion in the CEO compensation package can be one of the signals which contemporary firms are putting in much effort to alleviate the agency problem between CEO and the shareholders. Recent research also shows that debt like instruments such as pensions and deferred compensation are in fact substantial components of executive compensation as well.

Coles et al. (2006) shows that controlling for CEO pay-performance sensitivity (delta) and the feedback effects of firm policy and risk on the managerial compensation scheme, higher sensitivity of CEO wealth to stock volatility (vega) implements riskier policy choices, including relatively more investment in R&D, less investment in PPE, more focus, and higher leverage. They also find that riskier policy choices generally lead to compensation structures with higher vega and lower delta. Taking a step closer to the main theme of the paper, Cassel et al (2012) find that the volatility of future firm stock returns is lower when CEO inside debt holdings are large and that the reduction in volatility is (at least partially) realized through an increase in the conservative nature of firm investment and financial policies.

Based on these prior literatures, anecdotic evidence, and economic theory of firm, I conjecture that as the ratio of debt compensation relative to total compensation increase, CEO is more likely to invest in less risky project in order to manage firm conservatively due to their inside debt and focus on long term performance. This reduces their incentive to meet the short term performance benchmarks and in turn, CEO will decrease the excessive earnings manipulation proxied by the abnormal discretionary accruals. In the same aspect, the CEO and the company are less likely to adopt conservative accounting practice when the ratio of the debt compensation increases in their compensation package. The two research questions are empirically verified throughout the paper.

The remainder of this paper presents related literatures and research hypothesis in section 2, sample description and data in section 3, and empirical model with key results in section 4. The last section of the paper shows some additional test and briefly concludes the underlying limitations.

II. Prior Literature and Hypothesis Development

According to Jensen and Meckling (1976), shareholders ultimately bear the agency costs suffered by other stakeholders. Therefore, it appears intuitive that they should pay the manager according to firm value, rather than equity value alone. In particular, they speculated that granting the manager equal proportions

of debt and equity might attenuate the stockholder-bondholder conflicts that arise when the manager is purely equity-aligned. However, this idea of compensating the manager with inside debt has not since been pursued further. Instead, the intervening three decades of compensation theories such as Hirshleifer and Thakor (1992) have focused on justifying equity-like compensations, such as stock and options. In particular, a number of models suggest that bonuses for avoiding bankruptcy, salaries or managerial reputation are adequate remedies to the agency costs of debt, leaving no role for CEO inside debt in efficient compensation.

However, the substantial bondholder losses in the recent financial crisis suggest that the agency costs of debt are not fully solved. Theorists' focus on rationalizing equity pay has likely been driven by the longstanding belief that, empirically, executives do not hold debt as the survey of Murphy (1999) had shown. Yet, recent empirical studies such as Sundaram and Yermack (2007), Gerakos (2007); Wei and Yermack (2009) find that U.S. CEOs hold substantial defined benefit pensions and deferred compensations as well as stock options. These debt compensations are unsecured, unfunded obligations which, in nearly all cases, have equal priority with other creditors in bankruptcy and thus constitute inside debt.

Edmans and Liu (2011) also stress that recent empirical studies documenting the prevalence of debt-like instruments such as pensions. The paper

justifies the use of debt as efficient compensation by showing inside debt being a superior solution to the agency costs of debt than the solvency-contingent bonuses and salaries proposed by prior literature, since its payoff depends not only on the incidence of bankruptcy but also firm value in bankruptcy. Furthermore, contrary to intuition, granting the manager equal proportions of debt and equity is typically inefficient. In most cases, an equity bias is desired to induce effort.

One other particular feature of this new stream of debt compensation literature is that not all the papers give favorable support to the existence of debt compensation. The following two sub-sections explore more on this issue.

2.1. Positive view on CEO inside debt

Jensen and Meckling (1976), in their JFE paper, theoretically predict that CEOs with large inside debt holdings will display lower levels of risk- seeking behavior because these characteristics of inside debt expose the CEO to default risk similar to that faced by outside creditors. Accordingly, debt compensation helps the alignment of CEO's incentive with debt holders and it will reduce short-term incentive while enhancing long term incentive.

Coles et al. (2006), applying modeling and econometric remedies for the endogenous feedback effects of firm risk and policy choices on the structure of compensation, find that higher vega implements riskier policy choices, including

relatively more investment in R&D, less investment in property, plant, and equipment, greater focus on fewer lines of business, and higher leverage. This evidence provides support for the hypothesis that higher sensitivity to stock price volatility in the managerial compensation scheme gives executives the incentive to both invest in riskier assets and implement more aggressive debt policy. They also find that, as expected, stock price volatility is significantly positively related to R&D expenditures, firm focus, and leverage, and is negatively related to capital expenditures.

Cassel et al. (2012), also consistent with the theoretical predictions, find a negative association between CEO inside debt holdings and the volatility of future firm stock returns, R&D expenditures, and financial leverage, and a positive association between CEO inside debt holdings and the extent of diversification and asset liquidity. Collectively, the results provide empirical evidence suggesting that CEOs with large inside debt holdings prefer investment and financial policies that are less risky.

Overall, the empirical evidence on these inside debt literatures support the view that managerial debt holdings align the incentives of managers and debtholders and alleviate debtholders' concerns about expropriation, thereby reducing agency costs of debt.

2.2. Negative view on CEO inside debt

Nonetheless, the ongoing debate on the pros and cons for CEO inside debt is arduously being carried out as some literatures presents the adverse effect of debt compensation as well. Yermack et al (2007) find that top managers receive significant compensation from inside debt, that is, intracorporate IOUs such as pensions and deferred compensation. Although these compensation instruments have received very little attention in prior theoretical or empirical research into executive compensation, debt-based compensation provides managers with interesting incentives to reduce the agency costs of debt. Managers holding large pensions, for example, should be expected to pursue strategies that reduce overall firm risk. These may include choosing fewer risky investment projects that are sometimes profitable, unlevering the capital structure, reducing payouts to equity holders, or lengthening the average maturity of outstanding debt. They studied a sample of 237 large capitalization firms and find that CEOs hold a portfolio of incentives arising from both inside debt and inside equity compensation. This portfolio tends to shift in favor of the inside debt instruments as CEOs grow older. When a CEO's personal debt-to-equity ratio exceeds the firm's external debt-to-equity ratio, regression evidence indicates that CEOs manage more conservatively to reduce the probability of a debt default.

More research are being followed after the SEC adopted in 2006 enhanced

disclosure requirements that made systematic data on executive pensions and deferred compensation available. Wei and Yermack (2010) investigate stockholder and bondholder reactions to initial disclosures of CEO inside debt holdings in early 2007. They find that upon revelation of large inside debt positions, bond prices increase, stock prices decrease, and the volatility of both types of securities declines. The results indicate a reduction in firm risk, a transfer of value from equity toward debt, and an overall destruction of enterprise value when CEOs' inside debt holdings are large. The results in this line of research sharply contrasts to the favorable results that were presented in prior sub section since CEO inside debt seems to aggravate agency problem in this case.

2.3. Linking CEO inside debt to accounting literatures

Despite all the interesting finding on firms' investment decisions, change in equity and debt prices, change in volatility of asset, change in debt covenants due to CEO inside debt, these corporate finance literatures did not examine any accounting practice issues such as earnings management and conditional conservatism. Following the same stream of research, I examine the accounting issues that can be possibly affected by the existence of CEO inside debt.

I briefly summarize the earnings management and accounting conservatism measure in the following paragraphs. As in other studies, I use an abnormal

portion of total accruals or, equivalently, signed discretionary accruals (DA) as the proxy for the earnings management. To decompose total accruals into the expected, normal portion and the unexpected, abnormal portion, I employ the modified Jones (1991) model as proposed by Dechow et al. (1995), where, for firm i and in year t (or t - 1), TAC denotes total accruals; A, ΔSales, and PPE represent total assets, changes in net sales dollars, and gross property, plant, and equipment, respectively; and ε is an error term. Total accruals (TAC) are computed as $TAC_{it} = IBC_{it} - CFO_{it}$, where IBC_{it} represents income before extraordinary items and CFO_{it} is cash flow from operations, which is taken directly from the statement of cash flows. Using the estimated parameters of above equation, I compute nondiscretionary total accruals, denoted by NTAC can be computed. DAC is then obtained by taking the difference between asset-deflated TAC and NTAC, which is the main measure of earnings management variable in this paper.

Accounting conservatism in this paper is measured by using same methodology that Basu (1997) had used. He interpreted conservatism as resulting in earnings reflecting bad news more quickly than good news. This interpretation implies systematic differences between bad news and good news periods in the timeliness and persistence of earnings. By applying higher verifiability standards to gains than to losses, conservatism understates net assets and cumulative earnings, thereby limiting excessive payouts to shareholders as Watts (2003)

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points out. Ball (2001), Watts (2003), and Ma and Martin (2010) also shows that by recognizing losses in a more timely fashion than gains, conservatism reduces managers incentives to undertake highly risky, negative-NPV projects which lead to expropriation of debt holders. According to prior research, the demand for conservative accounting increases as the agency problem due to deterioration in corporate governance mechanism rises.

2.4. Hypothesis Development

Based on these papers, I develop the following two hypotheses in alternative form which incorporates the role of debt compensation as a key factor for mitigating agency problem by making CEO less likely to manipulate earnings and less likely to adopt conservative accounting.

H1: As the ratio of the debt compensation (deferred compensation and pension) increases in the CEO compensation package, the CEO's incentive to meet the short term benchmark to inflate the transient performance decreases and significantly reduce the amount of earnings management proxied by the abnormal discretionary accrual.
→ *Earnings management decreases in the ratio of the debt compensation in CEO compensation package.*

H2 : *As the ratio of the debt compensation (deferred compensation and pension) increases in the CEO compensation package, the CEO's incentive to manage the firm in more safety manner increases and adopt the conservative accounting.*

→ *Accounting conservatism increases in the ratio of the debt compensation in CEO compensation package.*

To test these hypothesis, I modify the regression model of , Choi et el (working paper), Basu (1997), Ball and Shivakumar (2005), and Goh and Li (2011) in section 4.

III. Sample Selection and Data

I retrieve executive's compensation data from Execucomp and capital market data from Compustat and CRSP. The initial year for all sample starts from 2006, which was the first year that the amount of deferred compensation and pension were first disclosed in U.S. I begin the sample construction process with Standard & Poor's (S&P) ExecuComp database, which provides information on the stock and stock option ownership and the value of deferred compensation and pension benefits of the five highest paid executives at S&P 1500 companies. The Securities and Exchange Commission (SEC) adopted enhanced executive compensation disclosure requirements in 2006. The new regulations mandate that

firms with fiscal year ends on or after December 15, 2006 provide detailed information on the computation and value of executive pension benefits and deferred compensation. The sample firms with inside debt information should have necessary stock returns data from CRSP and financial statement data from Compustat that allow us to construct such variables as the annual buy-and-hold returns, net income before extraordinary items, market value of equity, total assets, market-to-book ratio, leverage. The following table shows the descriptive statistics that are scheduled to use for testing the H1 and H2. The approximate portion of CEO inside debt relative to total compensation package is around 8%. Pearson and Spearman correlation table is also shown afterwards.

Table 2: Descriptive statistics (Full Sample)

Variables	N	Mean	Std.	Min.	1st quartile	Median	3rd quartile	Max.
Debt Compensation	4,670	0.078	0.147	0.000	0.000	0.000	0.085	0.675
Stock & Option Compensation	4,670	0.347	0.312	0.000	0.000	0.367	0.619	0.920
Current Compensation	4,670	0.575	0.329	0.064	0.273	0.511	1.000	1.000
Discretionary Accruals	4,670	0.052	0.079	-0.189	0.009	0.050	0.097	0.261
Abs(Discretionary Accruals)	4,670	0.075	0.058	0.000	0.030	0.061	0.106	0.261
Size	4,670	7.502	1.519	3.770	6.409	7.343	8.456	11.907
Leverage	4,670	0.184	0.156	0.000	0.023	0.172	0.290	0.636
Market-to-Book	4,670	2.747	2.241	0.367	1.435	2.129	3.248	18.417
Loss dummy	4,670	0.148	0.355	0.000	0.000	0.000	0.000	1.000
Std(EBITDA)	4,670	0.058	0.063	0.003	0.023	0.039	0.070	0.461

Variable definitions

Debt Compensation	Change in Pension Value and NonQualified Deferred Compensation / Total Compensation
Stock & Option Compensation	Stock or Option Grants and Restricted Stocks / Total Compensation
Current Compensation	Cash Compensation or bonus / Total Compensation
Total Compensation	Change in Pension Value and NonQualified Deferred Compensation + Stock or Option Grants and Restricted Stocks + Cash Compensation or bonus

Table 3: Pearson and Spearman Correlations

	debt	stock_option	current	other	x	ocf	ret	size	lev	mb	loss	std_ebitda	acc	dacc	abdacc
debt	1.000	0.012 0.404	-0.397 <.0001	0.027 0.063	0.192 <.0001	-0.087 <.0001	0.060 <.0001	0.339 <.0001	0.249 <.0001	0.042 0.003	-0.076 <.0001	-0.164 <.0001	0.144 <.0001	0.010 0.474	-0.045 0.002
stock_option	-0.117 <.0001	1.000	-0.888 <.0001	0.001 0.940	0.054 0.000	0.030 0.035	0.001 0.963	0.235 <.0001	0.107 <.0001	-0.001 0.925	-0.022 0.119	-0.021 0.138	-0.053 0.000	-0.010 0.513	-0.025 0.082
current	-0.336 <.0001	-0.896 <.0001	1.000	-0.012 0.394	-0.129 <.0001	-0.003 0.823	-0.028 0.055	-0.370 <.0001	-0.193 <.0001	-0.033 0.020	0.053 0.000	0.084 <.0001	-0.005 0.750	-0.001 0.953	0.034 0.020
other	0.011 0.446	-0.001 0.928	-0.004 0.798	1.000	0.009 0.533	-0.005 0.731	0.018 0.208	0.011 0.457	0.022 0.121	-0.004 0.771	-0.003 0.819	0.000 0.991	-0.001 0.964	0.007 0.623	0.016 0.265
x	0.098 <.0001	0.032 0.024	-0.074 <.0001	0.001 0.965	1.000	0.327 <.0001	0.248 <.0001	0.281 <.0001	0.049 0.001	0.164 <.0001	-0.616 <.0001	-0.218 <.0001	0.315 <.0001	0.454 <.0001	0.162 <.0001
ocf	-0.065 <.0001	0.029 0.047	0.002 0.882	0.005 0.713	0.323 <.0001	1.000	0.137 <.0001	0.255 <.0001	-0.223 <.0001	0.464 <.0001	-0.371 <.0001	-0.047 0.001	-0.456 <.0001	0.525 <.0001	0.371 <.0001
ret	0.047 0.001	-0.016 0.276	-0.006 0.669	0.024 0.100	0.099 <.0001	0.101 <.0001	1.000	0.149 <.0001	-0.067 <.0001	0.249 <.0001	-0.103 <.0001	0.010 0.471	-0.056 0.000	0.069 <.0001	-0.010 0.497
size	0.272 <.0001	0.232 <.0001	-0.342 <.0001	0.010 0.472	0.257 <.0001	0.246 <.0001	0.082 <.0001	1.000	0.184 <.0001	0.410 <.0001	-0.282 <.0001	-0.245 <.0001	0.075 <.0001	0.276 <.0001	0.127 <.0001
lev	0.176 <.0001	0.088 <.0001	-0.162 <.0001	0.013 0.351	-0.086 <.0001	-0.219 <.0001	-0.049 0.001	0.133 <.0001	1.000	-0.070 <.0001	0.069 <.0001	-0.087 <.0001	0.019 0.178	-0.200 <.0001	-0.175 <.0001
mb	0.055 0.000	-0.023 0.115	-0.003 0.842	0.009 0.524	0.129 <.0001	0.360 <.0001	0.128 <.0001	0.304 <.0001	0.014 0.339	1.000	-0.301 <.0001	-0.112 <.0001	0.057 <.0001	0.465 <.0001	0.371 <.0001
loss	-0.058 <.0001	-0.022 0.126	0.047 0.001	-0.008 0.574	-0.716 <.0001	-0.356 <.0001	-0.038 0.009	-0.286 <.0001	0.085 <.0001	-0.189 <.0001	1.000	0.347 <.0001	-0.310 <.0001	-0.525 <.0001	-0.082 <.0001
std_ebitda	-0.107 <.0001	-0.003 0.844	0.050 0.001	-0.002 0.912	-0.247 <.0001	-0.036 0.012	0.050 0.001	-0.196 <.0001	-0.035 0.014	-0.013 0.368	0.274 <.0001	1.000	-0.191 <.0001	-0.139 <.0001	0.090 <.0001
acc	0.099 <.0001	-0.062 <.0001	0.015 0.306	-0.008 0.577	0.439 <.0001	-0.451 <.0001	-0.070 <.0001	0.077 <.0001	0.004 0.791	0.015 0.313	-0.364 <.0001	-0.184 <.0001	1.000	0.230 <.0001	0.034 0.022
dacc	0.011 0.465	-0.016 0.283	0.010 0.490	0.008 0.599	0.566 <.0001	0.529 <.0001	0.049 0.001	0.286 <.0001	-0.194 <.0001	0.343 <.0001	-0.561 <.0001	-0.148 <.0001	0.314 <.0001	1.000	0.713 <.0001
abdacc	-0.041 0.005	-0.031 0.035	0.048 0.001	0.016 0.272	-0.026 0.073	0.387 <.0001	-0.026 0.074	0.126 <.0001	-0.170 <.0001	0.326 <.0001	-0.065 <.0001	0.100 <.0001	-0.023 0.118	0.581 <.0001	1.000

Pearson correlations are reported below the diagonal and Spearman correlations are reported above the diagonal.

IV. Empirical Models and Results

4.1. Testing H1: Earnings Management

To test H1, I devise the following regression using the modified Jones and Kothari model of discretionary accrual, as mentioned earlier.

$$DA_{it} = \alpha + \beta_1*(DEBT\ COMP/TOTAL)_{it} + \beta_2*(STOCK\ OPTION\ /TOTAL)_{it}$$

$$+ \beta_3*LNMV_{it} + \beta_4*LEV_{it} + \beta_5*MB_{it} + \beta_6*LOSS_{it}$$

$$+ \beta_7*STD(EBITDA)_{it} + \varepsilon_i \qquad\qquad (1)$$

Where:

DEBT COMP	=	Change in Pension Value and NonQualified Deferred Compensation
STOCK OPTION	=	Stock Awards, Option Grants, and Restricted Stocks
CURRENT COMP	=	Annual salary and bonus
TOTAL	=	Total amount of annual CEO compensation
	=	*DEBT COMP + STOCK OPTION + CURRENT COMP*
LNMV = SIZE	=	Natural log of market value of equity
LOSS	=	An indicator variable that takes the value of 1 if the firm reports a loss for the year

LEV	=	Sum of Long term debt and current liability deflated by
		total asset at the end of fiscal year
MB	=	Ratio of the market value to the book value of the firm

Due to the fact that firms are likely to invest in less risky projects, the volatility of firm's underlying asset will decrease concurrently and the CEO will have less incentive to manage earnings. Thus, I predict the coefficient of main variable β_1 to be negative. Table 4 shows the result of the regression.

Table 4: Effect of Debt compensation on Earnings Managements

Dependent variable	(1) Discretionary Accruals			(2) Abs(Discretionary Accruals)			(3) Loss		
	Coefficient		t-stat.	Coefficient		t-stat.	Coefficient		t-stat.
Intercept	0.009		1.16	0.027	***	3.90	0.098		0.99
Debt Compensation	**-0.020**	******	**-2.20**	**-0.016**	******	**-2.01**	**0.171**		**0.78**
Stock & Option Compensation	**-0.011**	*******	**-2.74**	**-0.007**	******	**-1.98**	**0.118**		**1.20**
Size	0.007	***	6.31	0.004	***	4.37	-0.300	***	-9.81
Leverage	-0.086	***	-10.47	-0.066	***	-9.50	1.360	***	7.45
Market-to-Book	0.008	***	8.55	0.008	***	9.05	-0.144	***	-4.72
Loss dummy	-0.107	***	-31.80	-0.001		-0.45			
Std(EBITDA)	0.005		0.26	0.113	***	4.80	4.524	***	5.52
Firm Fixed Effect			Yes			Yes			Yes
R^2 / Firm-years	0.420		4,670	0.173		4,670	0.210		4,670
	F-stat.		P-value	F-stat.		P-value	Chi2-stat.		P-value
Debt Compensation = Stock & Option Compensation	1.11		0.2922	1.42		0.2355	0.06		0.8015

The coefficients on debt compensation (the ratio of change in sum of deferred compensation and pension over total compensation) are significantly negative when dependent variables are Modified Jones model's discretionary accruals and its absolute value. This result is consistent with my expectation stated in H1, implying that CEO inside debt reduces the earnings management behavior of CEO. However, the coefficients on stock & option compensation (sum of stock grants, option grants and restricted stocks scaled by total compensation) are also significant. When dependent variable is a dummy variable which takes 1 when the firm reports negative income, and zero otherwise, coefficients on debt compensation and stock & option compensation are not significant.

4.2. Testing H2: Accounting Conservatism

To test H2, I also devise regression similar to Basu (1997), including debt compensation ratio as a key variable.

$$\mathbf{NI_{it}} = \alpha + \beta_1 * \mathbf{DR} + \beta_2 * \mathbf{R_{it}} + \beta_3 * \mathbf{DR} * \mathbf{R_{it}} + \beta_4 * \mathbf{(DEBT\ COMP/TOTAL)_{it}} +$$

$$\beta_5 * \mathbf{R_{it}} * \mathbf{(DEBT\ COMP/TOTAL)_{it}} + \beta_6 * \mathbf{DR} * \mathbf{(DEBT\ COMP/TOTAL)_{it}}$$

$$+ \beta_7 * \mathbf{DR} * \mathbf{R_{it}} * \mathbf{(DEBT\ COMP/TOTAL)_{it}} +$$

$$\beta_8 * \mathbf{(STOCK\ OPTION/TOTAL)_{it}} + \beta_9 * \mathbf{R_{it}} * \mathbf{(STOCK\ OPTION/TOTAL)_{it}} +$$

$$\beta_{10}*R_{it}*DR*(STOCK\ OPTION/TOTAL)_{it} + \beta_{11}*Size_{it} + \beta_{12}*R_{it}*Size_{it}$$

$$+ \beta_{13}*DR*Size_{it} + \beta_{14}*R_{it}*DR*Size_{it} + \beta_{15}*MB_{it} + \beta_{16}*R_{it}*MB_{it} +$$

$$\beta_{17}*DR*MB_{it} + \beta_{18}*R_{it}*DR*MB_{it} + \beta_{19}*LEV_{it} + \beta_{20}*R_{it}*LEV_{it} +$$

$$\beta_{21}*DR*LEV_{it} + \beta_{22}*R_{it}*DR*LEV_{it} + \varepsilon_i \qquad\qquad (2)$$

Where:

NI = Net income before extraordinary items scaled by the beginning-of-year market value.

R = Market adjusted stock return

DR = An indicator variable that equals 1 if R is less than 0, and 0 otherwise.

LEV = Sum of Long term debt and current liability deflated by total asset at the end of fiscal year

Considering conservatism as one of the mechanism which gives benevolent effects to corporate governance, it should act opposite to the amount of CEO inside debt since debt compensation is also one of the tools which is implemented to reduce agency cost, in turn improving corporate governance. Thus, I also expect the coefficient of the main variable β7 to be negative. Table 5 shows the result of the second regression.

Table 5: Effect of Debt compensation on Accounting Conservatism
- Basu (1997) Reverse Regression

	Dependent variable: Income before extraordinary items $_t$			Dependent variable: Income before extraordinary items $_t$			Dependent variable: Income before extraordinary items $_t$		
	Coefficient		z-stat.	Coefficient		z-stat.	Coefficient		z-stat.
Intercept	0.008		0.54	0.005		0.34	0.010		0.67
D_t	-0.020		-0.83	-0.015		-0.63	-0.022		-0.90
R_t	-0.083	**	-2.48	-0.085	***	-2.59	-0.089	***	-2.68
$D_t * R_t$	0.217	***	2.76	0.246	***	3.19	0.222	***	2.82
$DEBT_t$	0.034	**	2.19				0.038	**	2.32
$DEBT_t * D_t$	-0.050	*	-1.73				-0.054	*	-1.78
$DEBT_t * Ret_t$	-0.015		-0.34				-0.026		-0.58
$DEBT_t * D_t * Ret_t$	**-0.240**	**	**-2.30**				-0.246	**	-2.23
$StockOption_t$				0.005		0.65	0.010		1.13
$StockOption_t * D_t$				-0.005		-0.34	-0.011		-0.72
$StockOption_t * R_t$				-0.026		-1.21	-0.028		-1.38
$StockOption_t * D_t * R_t$				0.015		0.32	-0.003		-0.06
$Size_t$	0.005	***	2.73	0.006	***	2.93	0.004	**	2.13
$D_t * Size_t$	0.004		1.30	0.004		1.04	0.005		1.47
$R_t * Size_t$	0.015	***	3.12	0.016	***	3.41	0.017	***	3.61
$D_t * R_t * Size_t$	-0.025	**	-2.20	-0.031	***	-2.67	-0.026	**	-2.16
MB_t	-0.001		-0.83	-0.001		-0.68	0.000		-0.53
$D_t * MB_t$	-0.002		-1.30	-0.003		-1.30	-0.003		-1.40
$R_t * MB_t$	-0.001		-0.26	-0.001		-0.49	-0.001		-0.56
$D_t * R_t * MB_t$	-0.010	*	-1.78	-0.009		-1.60	-0.009	*	-1.68
Lev_t	0.035	**	2.30	0.038	***	2.58	0.035	**	2.31
$D_t * Lev_t$	-0.062		-1.50	-0.065		-1.61	-0.061		-1.46
$R_t * Lev_t$	-0.137	***	-3.78	-0.137	***	-3.94	-0.136	***	-3.80
$D_t * R_t * Lev_t$	0.335	***	3.45	0.308	***	3.24	0.339	***	3.40
Year dummy / Industry dummy			yes						
Pseudo-R^2 / Firm-years	0.156		4,670	0.152		4,670	0.158		4,670

Coinciding with the prior expectation, the results in Table 5 presents that β_7 is negative and statistically significant. This implies that debt compensation is negatively associated with accounting conservatism I can conclude that the two factors are substitutes in the corporate governance mechanism. Moreover, stock and option compensation is not associated with accounting conservatism.

V. Additional Tests, Limitations, and Conclusion

To conduct an additional test regarding with accounting conservatism, I calculated C_Score using the same methodology in Khan and Watts (2009). The result of C_Score calculated from initial full sample containing 4,670 firms in the S&P 1500 index is presented in Table 6.

Table 6: Additional Test on Accounting Conservatism : C_Score (Full Sample)

Panel A: Descriptive Statistics of C_Score and G_Score

	Mean	Std.	Min.	1st quartile	Median	3rd quartile	Max.
C_Score	-0.067	0.484	-1.921	-0.331	-0.074	0.168	2.417
G_Score	0.106	0.509	-0.845	-0.032	0.062	0.145	6.285

Panel B: Correlations (Spearman top triangle and Pearson bottom triangle)

	C_Score	G_Score
C_Score	1.000	-0.136
G_Score	-0.041	1.000

Considering the fact that C_Score calculated form period 1962~2005 in Khan and Watts (2009) was 0.105, the value -0.067 shown in Table 5 implies that the accounting conservatism is less prevalent in recent firms rewarding either debt or equity compensation, from period 2006 to 2010, and this is consistent with the result in the main table. To conclude this results of additional test in more firmly manner, I further divided the full sample into two sub samples by performing size-industry matching, which one group only contains firms paying debt compensation and one group not. Due to the missing values, each sample contains 1,902 firm year observations. The descriptive statistics of the sub samples are shown in Table 7.

Table 7: Descriptive statistics (Treatment Sample)

Panel A: Firms with CEO Inside Debt

Variables	N	Mean	Std.	Min.	1st quartile	Median	3rd quartile	Max.
Debt Compensation	1,902	0.196	0.175	0.000	0.043	0.151	0.313	0.675
Stock & Option Compensation	1,902	0.374	0.278	0.000	0.000	0.423	0.603	0.920
Current Compensation	1,902	0.428	0.266	0.064	0.211	0.358	0.588	1.000
Discretionary Accruals	1,844	0.054	0.073	-0.189	0.011	0.050	0.096	0.261
Abs (Discretionary Accruals)	1,902	0.071	0.056	0.000	0.028	0.058	0.101	0.261
Size	1,902	8.120	1.503	3.770	7.067	7.991	9.128	11.907
Leverage	1,902	0.224	0.136	0.000	0.129	0.221	0.311	0.636
Market-to-Book	1,902	2.813	2.304	0.367	1.465	2.142	3.339	18.417
Loss dummy	1,902	0.115	0.319	0.000	0.000	0.000	0.000	1.000
Std(EBITDA)	1,902	0.047	0.045	0.003	0.020	0.033	0.057	0.461

Table 7: Descriptive statistics (Matched Sample) *(continued)*

Panel B: Firms without CEO Inside Debt

Variables	N	Mean	Std.	Min.	1st quartile	Median	3rd quartile	Max.
Stock & Option Compensation	1,902	0.425	0.378	0.000	0.000	0.533	0.796	0.924
Current Compensation	1,902	0.575	0.378	0.076	0.204	0.467	1.000	1.000
Discretionary Accruals	1,850	0.094	0.072	-0.189	0.037	0.086	0.152	0.261
Abs(Discretionary Accruals)	1,850	0.098	0.066	0.001	0.044	0.089	0.152	0.261
Size	1,902	9.641	1.539	4.955	8.445	9.879	11.010	11.916
Leverage	1,902	0.181	0.152	0.000	0.043	0.151	0.279	0.635
Market-to-Book	1,902	3.683	2.428	0.566	2.086	3.148	4.438	19.842
Loss dummy	1,902	0.023	0.150	0.000	0.000	0.000	0.000	1.000
Std(EBITDA)	1,902	0.048	0.056	0.003	0.017	0.031	0.057	0.420

Using these sub samples, I once again calculated the C_Score for each of them. The results are shown in Table 8.

Table 8: Additional Test on Accounting Conservatism - C_Score (Treatment Sample)

Panel A: Descriptive Statistics of C_Score and G_Score (CEO Inside Debt)

	Mean	Std.	Min.	1st quartile	Median	3rd quartile	Max.
C_Score	**-0.099**	0.715	-2.137	-0.378	-0.098	0.261	5.890
G_Score	0.062	0.086	-0.255	0.025	0.074	0.108	0.618

Panel B: Correlations (Spearman top triangle and Pearson bottom triangle)

	C_Score	G_Score
C_Score	1.000	-0.395
G_Score	-0.239	1.000

Table 8: Additional Test on Accounting Conservatism - C_Score (Matched Sample) *(continued)*

Panel C: Descriptive Statistics of C_Score and G_Score (Control Sample)

	Mean	Std.	Min.	1st quartile	Median	3rd quartile	Max.
C_Score	**0.500**	2.306	-10.530	-0.126	0.087	0.441	21.539
G_Score	0.038	0.135	-0.511	-0.007	0.029	0.117	0.585

Panel D: Correlations (Spearman top triangle and Pearson bottom triangle)

	C_Score	G_Score
C_Score	1.000	-0.311
G_Score	-0.148	1.000

Subsequently, with the prior results, the firms in subsample with CEO inside debt were less conservative than the matched sample, showing the C_Score value of -0.09 and 0.500 respectively. The results in additional C_Score analysis validate the earlier main result on accounting conservatism.

I also devised the alternative regression shown in Ball and Shivakumar (2005) to test the relation between CEO inside debt and accounting conservatism. Yet, the results in Table 9 did not appear to be as strong as results in previous tables.

Table 9: Additional Test on Accounting Conservatism - Ball and Shivakumar (2005) Reg.

	Dependent variable: Accruals $_t$		Dependent variable: Accruals $_t$		Dependent variable: Accruals $_t$	
	Coefficient	z-stat.	Coefficient	z-stat.	Coefficient	z-stat.
Intercept	-0.010 ***	-3.38	0.000 ***	0.00	-0.009 **	-2.07
DCF $_t$	0.009	1.12	0.004	0.39	0.006	0.57
CF $_t$	-0.338 ***	-18.15	-0.346 ***	-14.40	-0.334 ***	-12.39
DCF $_t$ * CF $_t$	0.125	1.47	0.025	0.22	0.040	0.35
DEBT $_t$	0.043 ***	3.53			0.042 ***	3.35
DEBT $_t$ * DCF $_t$	-0.013	-0.35			-0.014	-0.37
DEBT $_t$ * CF $_t$	-0.078	-0.87			-0.083	-0.89
DEBT $_t$ * DCF $_t$ * CF $_t$	**-0.544**	**-1.26**			**-0.541**	**-1.25**
StockOption $_t$			-0.007	-1.03	-0.004	-0.63
StockOption $_t$ * DCF $_t$			0.002	0.08	0.003	0.10
StockOption $_t$ * CF $_t$			-0.009	-0.19	-0.015	-0.31
StockOption $_t$ * DCF $_t$ * CF $_t$			**0.243**	**1.10**	**0.264**	**1.27**
Year dummy / Industry dummy		yes				yes
Pseudo-R^2 / Firm-years	0.255	4,670	0.253	4,670	0.249	4,670

This paper tried to verify the relationship between CEO inside debt and accounting quality measures such as earnings management and accounting conservatism. Although numerous corporate finance literatures examining CEO inside debt with corporate investment selection, debt covenant, and debt price are being published due to newly released data regarding deferred compensation and pension in Execucomp since 2006, this paper contribute to the existing accounting literature by first examining debt compensation with accounting quality measures.

However, the paper still needs rigorous robustness test on further confirming the initial result which CEO inside debt actually decreases earnings management and accounting conservatism of a firm. Even with all the methodological and technical drawbacks, the result of this paper can help policy makers in governments and controlling shareholders of a firm since it sheds light on how to resolve agency problem using CEO inside debt as an incentive.

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초 록 (국문)

본 논문에서는 CEO 보상의 형태에 따라 기업의 이익조정 및 회계 보수주의가 어떻게 바뀌는지를 조사하였다. 즉, 급여(salary), 상여금(bonus), 또는 스톡 옵션(stock option)과 같은 단기적 보상이 주된 비중을 차지하는 CEO 의 총 보상체계에서 이연 급여(deferred compensation)나 연금(pension)과 같이 상대적으로 시간이 지난 후에 지급 받는 장기적 보상이 차지하는 비중이 증가함에 따라 기업의 이익 조정 및 회계 보수주의와 같은 회계 품질이 과연 유의미하게 변화하는 지를 WRDS Execucomp 의 공개 데이터를 사용하여 미국 기업 중심으로 분석하였다.

이연 급여 및 연금에 관한 연구는 미국에서 Execucomp 를 통해 CEO 들이 받는 이연 급여 및 연금과 같은 장기적인 보상액수를 의무적으로 공시하기 시작한 2006 년부터 활발하게 진행되었다. 하지만 현재까지는 주로 이연 급여 및 연금이 기업의 투자활동, 부채계약, 주가 등과 같은 재무활동에 미치는 영향에 관한 연구들이 주를 이루었을 뿐, 회계의 질과 관련된 연구는 행해진 적이 없기에 본 논문의 연구대상으로 삼았다. 이연 급여 및 연금이 CEO 의 총 보상체계에서 차지하는 비중이 늘어날수록 CEO 들은 좀 더 보수적으로 기업을 운영하고자 투자안을 선택을 할 때에도 위험도가 상대적으로 낮은 대안을 선호한다는 최신 연구를 기반으로 하여 장기적 보상이 증가하면 기업의 이익 조정과 회계 보수주의가 낮아진다고 예상하였고 실제로 나온 실증 결과들도 이러한 예상과 일치하였다.

이연 급여와 연금의 비중이 증가할수록 회계 보수주의가 낮아진다는 결과는 결국 장기적인 보상과 회계 보수주의가 기업지배구조를 향상시키고 대리인 문제를 완화하는데 있어서 보완재가 아닌 대체재로 작용한다는 증거가 될 수 있다. 본 논문의 결과는 미국뿐만 아니라 한국을 포함한 여러 나라의 기업 및 정부들이 이상적인 CEO 보상체계를 설계함에 있어서 장단기 보상을

어떠한 방식으로 수정 및 조정을 해야 하는지에 대한 정책적 함의 또한 내포
하고 있다.

주요어: 이연 급여, 연금, 이익 조정, 회계 보수주의, 대리인 문제
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