LABOR UNIONS AND CORPORATE PENSION POLICY

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ABSTRACT

We investigate the effect of labor unions on corporate pension policies. First, we examine whether organized labor mitigates the understatement of pension liabilities on the statement of financial position. We find that firms with labor unions tend to report smaller actuarial gains (or larger actuarial losses) associated with the remeasurement of pension liabilities, suggesting that labor unions play a monitoring role in the reporting of corporate pension liabilities and/or that firms try to enhance their bargaining power with the labor union by exaggerating their financial burden of corporate pension liabilities. Next, we examine whether union presence affects external corporate pension funding. We do not find that the pension funding level (the ratio of the fair value of plan assets to pension liabilities) is higher for firms with labor unions. Overall, our results indicate that labor unions constrain management incentives to understate pension liabilities, but they have limited influence on corporate pension funding decisions.

Keywords: Labor Unions, Pension Accounting, Pension Funding Ratio, Contribution to Funding Assets.

INTRODUCTION

With the amendment of the Employee Retirement Benefit Security Act (ERBSA) Enforcement Decree in 2015, Korean companies are mandated to adopt a corporate pension plan which can include Defined-Benefit (DB), Defined-Contribution (DC), and Individual Retirement Pension (IRP) plans. According to the Financial Supervisory Service (FSS), 89% of Korean firms have adopted a DB pension scheme at the end of 2017. In a DB plan, firms take all actuarial risks (i.e., actual benefit payments could be greater than what was expected) and investment risks (i.e., actual returns on plan assets may be lower than the expected returns). Many Korean firms with DB plans have difficulties in meeting external pension funding requirements, estimating pension obligations under International Financial Reporting Standards (IFRS), and managing pension assets efficiently. In this situation, as an important corporate stakeholder, employees have been paying attention to corporate pension policies. Nevertheless, research on the effect of a unionized workforce on corporate pension decisions has been scant. To fill this void in the literature, this study aims to shed light on the effect of labor unions on the financial reporting and external funding of corporate pensions.

Labor unions are formed to represent employees in collective bargaining with employers. Prior literature suggests that labor unions use their bargaining power and extract rents (Jensen & Meckling, 1976; Bronars & Deere, 1993; Hirsch, 1992). Thus, managers of unionized firms have incentives to withhold financial information to preserve informational advantage against unions (DeAngelo, 1981; Mora & Sabater, 2008). Firms with organized labor tend to make corporate decisions to restrain labor union's rent-seeking activities (Connolly et al., 1986; Klasa et al., 2008). For example, firms hold less cash and invest less in research and development (R&D) to have bargaining advantages over organized labor.

On the other hand, labor unions are deemed to perform a monitoring role of corporate

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decisions (Leung, 2009; Choi & Bae, 2011; Chen et al., 2012). Labor unions actively demand access to firms' financial information and take actions to constrain managerial discretions and to mitigate shareholders' wealth expropriation (Appelbaum & Hunter, 2013). Based on these two alternative views of labor unions, we investigate whether the presence or strength of labor unions influences (i) the accounting estimates of pension liabilities and (ii) external pension funding decisions.

Prior research reports that firms manage pension liabilities to achieve a variety of financial reporting objectives. For example, firms understate pension liabilities to raise the reported pension funding ratio or to present a better-looking financial condition (Asthana 1999; Gopalakrishnan & Sugrue, 1995; Godwin, 1999). However, research on the effect of labor unions on corporate pension has been scant.

The literature on labor unions has extensively examined whether managers devalue financial performance in the presence of unions. Baldwin (1983) and Grout (1984) view unions as economic rent seekers because unions utilize strike threats to extract quasi-rents from firms. Firms facing a strong labor union have incentives to shelter firm resources to gain a bargaining advantage. For example, firms with stronger labor unions tend to hold less cash (Klasa et al., 2009), increase financial leverage (Bronars & Deere, 1991), and disclose positive news less frequently (Chung et al., 2016).

Corporate pensions are deferred compensation that firms pay to employees after the completion of employment. Employees are the most important stakeholder with respect to corporate pensions and make a collective voice in the management of pension funds. Under corporate pension accounting, firms recognize the present value of expected future benefit payments to employees as pension obligations at the end of each reporting period. Since the estimation of pension obligations involves managerial choices of actuarial assumptions, prior studies suggest that firms manage pension obligations via these assumptions to achieve their financial or tax objectives (Gopalakrishnan & Sugrue, 1995; Godwin et al., 1996; Godwin, 1999; Asthana, 1999; Bergstresser et al., 2006).

To the extent that labor unions play a monitoring role in the reporting of pension liabilities, unionized firms will be under scrutiny to present pension liabilities fairly on the statement of financial position. Furthermore, when firms face renegotiation with labor unions, their incentives to understate pension liabilities would be mitigated or their incentives to overstate will be pronounced. The press reports that when pension plans appear to be burdensome to firms, employees tend to show less resistance to their benefit cuts (Francis & Schultz, 2003, C.1). Thus, the presence of labor unions will reduce management incentives to understate pension liabilities. We predict that firms with labor unions are less likely to understate pension liabilities than those without labor unions.

Next, we examine the effect of labor unions on corporate pension funding levels. To secure employee retirement benefits from creditors in the event of bankruptcy, firms are mandated to make contributions to external institutions. Plan assets are managed independent of the sponsoring firm and are restricted to financing future pension payments to employees. Labor unions demand firms to increase external pension funding. We predict that labor unions will ask for fully funded pensions or a reduction of the degree of the underfunding.

We use a sample of 2,891 firm-years over the period from 2011 to 2016 for the empirical analysis. We use firm-level labor union data at the end of 2008. The Korea Exchange had required firms to report the details of labor unions until 2008, thus we can utilize firm-level data which have a lower measurement error than industry-level data used in other studies. As a proxy

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for the understatement of pension liabilities, we use the amount of actuarial gains and losses associated with the remeasurement of pension obligations. Actuarial gains and losses arise due to changes in actuarial assumptions of defined benefit obligations (DBO). To the extent that firms have some latitude in setting actuarial assumptions, they can understate or overstate pension liabilities by introducing a bias into actuarial assumptions.

We find that unionized firms report smaller actuarial gains (or larger actuarial losses), suggesting that labor unions play a monitoring role in the understatement of pension liabilities and/or that firms exaggerate their burden of pension obligations. But we do not find that the external pension funding level is higher for unionized firms than non-unionized firms. That is, labor unions constrain management incentives to understate pension liabilities but do not enhance the funding status.

Contributions of the paper are as follows. First, unlike prior studies that examine the effect of labor unions on an overall financial reporting quality, such as discretionary accruals or accounting conservatism (Leung, 2009; Choi & Bae, 2011), we focus on a specific accounting estimate in which labor unions and employees are the most interested. This allows us to better assess managerial discretions related to labor unions.

Second, we contribute to the studies on the determinants of pension assumptions by showing that labor unions influence management choice of pension assumptions. Extant studies focusing on the incentives to manipulate reported pension liabilities have not considered the existence of labor unions, one of the most important stakeholders of corporate pensions.

The remainder of the paper proceeds as follows. Section 2 reviews relevant literature and develops hypotheses. Section 3 explains sample selection procedures and the methodology used to test our hypotheses. Section 4 presents empirical results. Section 5 presents the conclusions with a summary.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Labor Unions and Pension Liability Measurement

Prior studies document that firms manage pension liabilities via actuarial assumptions to achieve their financial or tax objectives (Gopalakrishnan & Sugrue, 1995; Godwin et al., 1996; Godwin, 1999; Asthana, 1999; Bergstresser et al., 2006). Firms tend to understate pension liabilities in an effort to increase the reported pension funding ratio or to present a better-looking financial condition (Asthana, 1999; Gopalakrishnan & Sugrue, 1995; Godwin, 1999). However, there is relatively limited evidence on the effect of labor unions, the most important stakeholder of corporate pensions, on the financial reporting of pension liabilities.

Prior literature on the effect of labor unions on overall financial reporting provides inconclusive results. One stream of literature documents that labor unions extract excessive rents by using their bargaining position (Jensen & Meckling, 1976; Bronars & Deere, 1993; Hirsch, 1992). Firms manage earnings to withhold financial information from labor unions (Liberty & Zimmerman, 1986; DeAngelo, 1981; Mora & Sabater, 2008). DeAngelo (1981) show that firms are likely to report lower earnings during union negotiations. Mora & Sabater (2008) show that firms manage income downwards prior to labor bargains to lower salary increase demand.

Recently, a stream of literature on labor unions proposes that labor unions perform a role in monitoring a firm's financial reporting (Choi & Bae, 2011; Chen et al., 2012). Labor unions actively take actions to require firms to pursue a higher degree of accounting conservatism

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(Leung, 2009). They also serve a governance role of limiting both income increasing and decreasing earnings management (Choi & Bae, 2011).

Pension obligations are liabilities on the statement of financial position that firms pay employees after the completion of employment. According to the rent-seeking view, firms facing a renegotiation with labor unions have incentives to overstate or understate less their pension liabilities to make their plans appeared as burdensome as possible. When pension plans are deemed burdensome to the firm, employees tend to show less resistance to their benefit cuts (Francis & Schultz, 2003, C.1).

When labor unions actively monitor corporate reporting of pension liabilities, unionized firms will be under pressure to present pension liabilities fairly on the statement of financial position. International Financial Reporting Standards (IFRS) requires firms to disclose significant actuarial assumptions of corporate pensions such as the discount rate (DR) and salary growth rate (SGR). Unions could easily identify what assumptions are used to estimate pension liabilities from publicly available financial information and make a collective voice in setting unbiased actuarial assumptions.

Taken together, we hypothesize that firms with labor unions are less likely to understate (or equivalently more likely to overstate) pension liabilities than those without labor unions.

H1: *The presence (or strength) of labor union is negatively related with the degree of understatement of pension liabilities on the statement of financial position.*

Labor Unions and Pension Funds

The U.S. has the Pension Benefit Guaranty Corporation (PBGC) which provides participants with guaranteed *"basic"* benefits in the event that their employer-sponsored defined-benefit plans became insolvent. Korea does not have such a safety net for private-sector defined-benefit pension plans. Instead, Korean firms are guided to make cash contributions to external financial institutions to secure employee retirement benefits from creditors in the event of bankruptcy. Some firms, however, have not contributed sufficiently to external pension funds. Thus, employees are quite interested in whether the sponsoring firms have enough resources to pay when they retire. Therefore, labor unions demand their firms to increase their external pension funding to protect their retirement claims.

On the other hands, unionized firms have incentives to contribute less to external pension funds and maintain a low funding status to reduce rent-seeking activities of labor unions. Connolly et al. (1986) suggest that firms in highly unionized industries invest less in R&D to limit the rent-seeking activities of labor unions. Klasa et al. (2008) show that firms in more unionized industries strategically have less cash holdings to gain bargaining advantages over labor unions and secure corporate income from their demands. In this context, we can expect that unionized firms strategically maintain a low funding ratio (the ratio of the fair value of plan assets to pension obligations).

It is an empirical question whether labor unions enhance the pension funding ratio or not. We allege that the demand for a higher funding by labor unions exceeds the firm's incentives to reduce external pension funding.

H2: *The presence (or strength) of labor union is positively related with the pension funding levels.*

RESEARCH DESIGN

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Data and Sample Selection

Our sample includes 2,891 firm-year observations in the post IFRS period (from 2011 to 2016). Before the adoption of IFRS in 2011, Korean firms used the *termination method*. Under the termination method, firms do not have discretion in reporting pension liabilities because pension liabilities are determined under the assumption that all employees terminate their employment as of the reporting date. Moreover, in the pre-IFRS period, pension related disclosures were limited: firms disclose neither the pension funding ratio nor components of net defined benefit liabilities.

We collect firm-level labor union data at the end of 2008 because listed firms had been required to disclose information about labor unions until 2008 in their annual business report. Even though labor union data is stale during our examination period, we judge that the benefits of firm-level union data outweigh the measurement error of stale labor union data. To mitigate the effect of outliers, we winsorize all continuous variables at the top and bottom one percent levels.

Regression Models

The effect of labor union on the understatement of pension liabilities (H1)

We examine the effect of labor unions on the understatement of corporate pension liabilities by estimating the following regression model.

$$\begin{aligned} RMS\_DBO_{it} = \; & \alpha_0 + \alpha_1 * UNION_i + \alpha_2 * JOINT_i + \alpha_3 * KCTU_{it} + \alpha_4 * FUNDR_{it-1} \\ & + \alpha_5 * ROA_{it} + \alpha_6 * CFO_{it} + \alpha_7 * SGW_{it} + \alpha_8 * LEV_{it} + \alpha_9 * LOSS_{it} \\ & + \alpha_{10} * SIZE_{it} + \alpha_{11} * BIG4_{it} + \alpha_{12} * YEAR_{it} + \alpha_{13} * INDUSTYD_{it} + \varepsilon \end{aligned}$$

The main variable of interest is actuarial gains and losses associated with remeasurement of pension obligations deflated by beginning DBO (*RMS_DBO)*. It captures the overall effect of changes in all actuarial assumptions from the preceding year on DBO. A positive (negative) amount of *RMS_DBO* implies use of more obligation-decreasing (increasing) assumptions. *UNION* is an indicator variable for firms with labor unions. *JOINT* is an indicator variable for the strength of labor unions measure that equals 1 for firms whose labor union is affiliated with the Korean Confederation of Trade Unions (KCTU) or Federation of Korean Trade Unions (FKTU). To measure the strength of labor unions, we additionally use an indicator variable that equals 1 for firms whose labor union is affiliated with the KCTU *(KCTU)*. In Korea, KCTU is regarded as more confrontational and aggresive in industrial relations than FKTU.

We predict that firms are less likely to understate their pension liabilities by recognizing smaller actuarial gains (or larger actuarial losses) when they have labor unions (H1). Thus, we expect a negative coefficient on *UNION*: $\alpha_1 < 0$.

We include several control variables in the regression model. We control for the effect of a firm's characteristics on actuarial assumption choices used in previous studies: return on assets (*ROA*), cash flows from operations (*CFO*), sales growth (SGW), financial leverage (*LEV*), an indicator variable for loss making firms (*LOSS*), and firm size measured by the natural logarithm of total assets (*SIZE*). Prior studies show that profitability, operating cash flow, and financial leverage of a firms influence actuarial assumption choices (Asthana, 1999). We also control for

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audit quality with an indicator variable for *"Big 4"* auditors (*Big4*) because auditors play a monitoring role in pension reporting (DeAngelo, 1981; Becker et al., 1998). We further include fixed effect dummies for year and industry. Detailed variable definitions are in Appendix.

The effect of the labor union on pension funding policies (H2)

We examine the effect of labor unions on the pension funding level using the following regression. To capture how much cash contributions firms make to external plan assets for employee retirement benefits, we use the ratio of the fair value of plan assets to defined-benefit pension obligations (*FUND_R*) as dependent variable.

$$\begin{aligned} FUND\_R_t = \quad & \alpha_0 + \alpha_1 * UNION_i + \alpha_2 * JOINT_i + \alpha_3 * KCTU_{it} + \alpha_4 * lgFUND_{it} \\ & + \alpha_5 * ROA_{it} + \alpha_6 * CFO_{it} + \alpha_7 * SGW_{it} + \alpha_8 * LEV_{it} + \alpha_9 * LOSS_{it} \\ & + \alpha_{10} * SIZE_{it} + \alpha_{11} * BIG4_{it} + \alpha_{12} * YEAR_{it} + \alpha_{13} * INDUSTYD_{it} + \varepsilon \end{aligned}$$

We predict that unionized firms exhibit a higher funding ratio than non-unionized firms (H2). Thus, we expect a positive coefficient on *UNION*: $\alpha_1 > 0$.

RESULTS

Descriptive Statistics

Panel A of Table 1 presents the descriptive statistics for the sample of 2,891 firm-year observations. The mean value of labor union dummy (*UNION*) is 0.47: that is, slightly less than half of the firms in the sample have a labor union. The mean value of labor union affiliation dummy *(JOINT*) and KCTU are 0.44 and 0.18, respectively: approximately 93% of labor unions in the sample is affiliated with KCTU or FKTU and 40% of them are belongs to KCTU.

The mean actuarial gains or losses associated with DBO (*RMS_DBO*) is negative 0.013: firms in the sample report, on average, actuarial losses that result in an increase of DBO. Actuarial losses are mainly due to a decreasing trend of the pension discount rate during the examination period. *Ceteris paribus*, a decrease in the discount rate leads to a higher estimate of pension obligations, resulting thereby in actuarial losses. The mean pension funding ratio (*FUND_R*) is 5 3.7%. That is, corporate pensions are under-funded in Korea. The mean and median ROAs are -0.01 and 0.02, respectively. The mean sales growth rate (*SGW*) is 3%. Over the sample period, 32% of the firms report losses (*LOSS*) and 49% of the firms hire a Big4 auditor.

Panel B and Panel C of Table 1 reports means of main variables for firms with and without labor unions. Regarding the remeasurement of DBO (*RMS_DBO*), unionized firms report larger actuarial losses than firms without unions (−0.143 vs. −0.113). Firms with labor unions have a higher funding ratio (56%) than those without unions (52%). Panel C presents Pearson correlation coefficients for the variables used in the regressions. *UNION* correlates negatively to *RMS_DBO* and positively to *FUND_R.*

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Regression Results

The effect of the labor union on the understatement of pension liabilities

Table 2 reports the regression results of actuarial gains and losses associated with the remeasurement of DBO (*RMS_DBO*) on labor unions after controlling for firm and pension characteristics. In column (1), we present estimation results for the effect of the existence of labor unions (*UNION*). As predicted, we find that the coefficient estimate on *UNION* is significantly negative at the 5% level (t-statistic of -2.47). Firms with labor unions are more likely to set obligation-increasing pension assumptions (thus, recognize lower actuarial gains or higher actuarial losses) not to understate the amount of DBO. In column (2), we further add a dummy for the strength of labor unions (*JOINT*). The coefficient estimate on JOINT significantly negative at the 5% level (t-statistic of −2.02), suggesting that the significant effect of UNION in column (1) is mainly due to stronger unionized labor. In column (3), we further add a dummy for KCTU (*KCTU*). The coefficient on KCTU is insignificant, suggesting that there is no significant difference in the understatement of pension liabilities between KCTU and FKTU.

To summarize, the results in Table 2 indicate that labor unions play a monitoring role in the financial reporting of pension obligations by restricting management discretion over the choice of actuarial assumptions (Cullinan & Knobett, 1994).

The effect of the labor union on the pension funding ratio

Panel A of Table 3 presents average pension funding ratios for firms with and without labor unions at the end of the fiscal year. For both groups of firms, the funding ratio has gradually increased over the sample period of 2011-2016. It might be partly attributable to the minimum pension funding guideline that the Korean government introduced in June 2011. Korean government instituted this guideline to reduce prevalent pension deficits. The government initially set the funding ratio at 60% and prompted firms to meet the ratio by 2013. Over the examination period, the average funding ratio has increased for both groups of firms. The average funding ratio increased from 55% to 58% for firms with labor unions, and from 47% to 55% for firms without labor unions. The average funding ratio is higher for unionized firms than non-unionized firms, but the difference has decreased to 3% at the end of 2016.

Panel B of Table 3 reports the regression results of the pension funding ratio (*FUND_R*) on labor unions. In column (1), the existence of labor unions (*UNION)* is not significantly related to *FUND_R*. In columns (2) and (3), when we further include *JOINT* and *KCTU*, the results are similar to those in column (1). That is, presence and strength of labor unions have no significant effect on the pension funding levels. Unlike the financial reporting of pension liabilities in Table 2, it appears that labor unions have limited influence on pension funding. Since pension funding decisions are part of a firm's core financing and investment decisions, unionized firms might strategically maintain a lower funding ratio to reduce rent-seeking activities of labor unions (Connolly et al., 1986; Klasa et al., 2008).

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Additional Tests

The impact of leverage on the relation between labor union and funding ratio

In this section, we attempt to identify how labor unions affect the pension funding ratio in highly leveraged firms. When a firm has not fully funded its pension obligations, it means that future pension payments need to be paid partly from the firm's own cash flows when they are due. If firms go bankrupt, employee retirement benefits would not be secured from creditors. For highly levered firms, we postulate that labor unions have stronger incentives to raise the pension funding ratio to protect their retirement claims. Unlike the U.S. where the Pension Benefit Guaranty Corporation covers the unfunded benefits, Korea does not have such an institution. Labor unions might pay more attention to the pension funding ratio for financially distress firms. On the other hands, highly levered firms have incentives to maintain pension funding low since they do not have financial resources to contribute to pension funds.

We partition the sample into quartiles by financial leverage. We add a dummy for firms with high financial leverage (LEV_H) and its interaction with UNION to Equation (2). LEV_H equals 1 for firms in the top quartile of financial leverage.

Table 4 reports the regression results of the effect of financial leverage. As in Table 3, in column (1), the coefficients on UNION are negative, but insignificant. However, in column (2), the coefficient on LEV_H*UNION is significantly negative (-5.19). These results indicate that highly leveraged firms have more incentives to hold less pension funds to gain bargaining advantages over labor unions (Klasa et al., 2008).

The effect of the labor union on the magnitude of contributions to plan assets

We further examine whether unionized firms contribute less to pension assets according to a rent-seeking argument of labor union. Panel A and B of Table 5 presents means of CONTRIBUTE by firms with and without labor unions. Firms with labor unions have a lower pension funding ratio than those without unions (1.2 vs. 1.53). In panel B, the regression results show that the coefficient on UNION is significantly negative (-1.84), suggesting that the presence of labor union is negatively related to the magnitude of contributions to pension funds.

CONCLUSIONS

Extant studies on corporate pensions suggest that firms can use actuarial assumptions to misstate pension liabilities to achieve their financial reporting and tax objectives. Firms may understate their pension liabilities to portray a better-looking financial condition. In this paper, we examine the effect of labor unions on corporate pensions. We find that firms with labor unions are less likely to understate pension liabilities on the statement of financial position, consistent with the view that firms exaggerate the burden of their defined benefit pension plans to enhance their bargaining power with unions. However, there is no association between labor unions and pension funding levels, suggesting that firms with labor unions do not contribute more to external pension funds. Further, we find that unionized firms tend to contribute less to external pension funds and maintain a lower funding ratio in highly leveraged situations. Overall, our results indicate that labor unions play a monitoring role in a discretion on reported pension obligations in financial reporting, whereas their roles are limited on corporate pension funding decisions.

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Appendix: Variable Definitions

Table 1 DESCRIPTIVE STATISTICS	
Variable	**Definition**
Dependent Variables	
RMS_DBO	Actuarial gains and losses associated with the remeasurement of pension obligations deflated by beginning defined benefit obligations.
FUND_R	The ratio of the fair value of plan assets to defined benefit pension obligations.
Independent Variables	
UNION	An indicator variable for firms with labor union.
JOINT	An indicator variable for firms whose labor union is affiliated with the Korean Confederation of Trade Unions or Federation of Korean Trade Unions.
KCTU	An indicator variable for firms whose labor union is affiliated with the Korean Confederation of Trade Unions.
ROA	Net income divided by beginning total assets.
CFO	Cash flow from operations deflated by beginning total assets.
LEV	Liabilities deflated by beginning total assets
LOSS	Indicator variable for firms reporting losses
SIZE	The natural logarithm of total assets at the beginning of the fiscal year.
SGW	The change in sales year t relative to year t-1. SIZE is the natural logarithm of the beginning total assets.
CASH	Cash and short-term financial assets deflated by the beginning total assets.
BIG4	An indicator variable for firms hiring BIG4 accounting firms.

Panel A

This table provides descriptive statistics for key variables. FUND_R is the ratio of the fair value of plan assets to defined-benefit pension obligations, measured at the beginning of the fiscal year. RMS_DBO is actuarial gains and losses associated with the remeasurement of pension obligations deflated by beginning defined benefit obligations. UNION is an indicator variable for firms with labor union. JOINT is an indicator variable for firms whose labor union is affiliated with the Korean Confederation of Trade Unions or Federation of Korean Trade Unions. KCTU is an indicator variable for firms whose labor union is affiliated with the Korean Confederation of Trade Unions. ROA is the return on total assets at the beginning of fiscal year. CFO is operating cash flows deflated by the beginning total assets. SGW is the change in sales year t relative to year t-1. SIZE is the natural logarithm of the beginning total assets. CASH is cash and short-term financial assets deflated by the beginning total assets. LEV is liabilities deflated by the beginning total assets. LOSS is an indicator variable for firms reporting losses in the preceding year. BIG4 is an indicator variable for firms hiring BIG4 accounting firms.

Table 1 PANEL A							
Variables	**Mean**	**Std dev**	**Min**	**1st quartile**	**Median**	**3rd quartile**	**Max**
UNION	0.47	0.50	0	0	0	1	1
JOINT	0.44	0.50	0	0	0	1	1
KCTU	0.18	0.39	0	0	0	0	1
RMS_DBO	-0.12	0.36	-3.62	-0.26	-0.08	0.04	2.78
FUND_R	0.54	0.30	0.00	0.30	0.61	0.79	0.99
ROA	-0.01	0.12	-0.41	-0.02	0.02	0.05	0.18
CFO	0.04	0.08	-0.18	-0.00	0.04	0.09	0.23

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SGW	0.03	0.31	-3.83	-0.05	0.02	0.11	7.60
SIZE	11.75	1.51	9.13	10.78	11.50	12.48	16.59
CASH	0.07	0.06	0.00	0.03	0.05	0.09	0.33
LEV	0.47	0.20	0.09	0.32	0.49	0.62	0.90
LOSS	0.32	0.46	0	0	0	1	1
BIG4	0.49	0.50	0	0	0	1	1

The signs of *, **, and *** represent the significance of 10%, 5%, and 1%, respectively.

Table 1
PANEL B: MEANS OF VARIABLES BY FIRMS WITH LABOR UNION VS. WITHOUT LABOR UNION

Variables	Firms with labor union	Firms without labor union	Tests of difference in means	
	(n=1,945)	(n=1,683)	t-statistic	
RMS_DBO	-0.143	-0.113	0.03	**
FUND_R	0.56	0.52	0.04	***

Table 1
PANEL C: PEARSON CORRELATIONS OF KEY VARIABLES

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
RMS_DBO												
(1)												
FUND_R	-0.02											
(2)	0.41											
UNION	-0.03	0.07										
(3)	0.11	0.00										
JOINT	-0.04	0.07	0.94									
(4)	0.03	0.00	0.00									
KCTU	0.00	0.04	0.51	0.54								
(5)	0.93	0.04	0.00	0.00								
ROA	-0.13	0.23	0.06	0.05	0.05							
(6)	0.00	0.00	0.00	0.01	0.00							
CFO	-0.11	0.17	0.03	0.02	-0.01	0.65						
(7)	0.00	0.00	0.17	0.31	0.48	0.00						
SGW	-0.11	0.02	-0.03	-0.02	-0.01	0.09	-0.01					
(8)	0.00	0.42	0.18	0.22	0.61	0.00	0.66					
SIZE	0.00	0.26	0.38	0.37	0.25	0.46	0.34	-0.01				
(9)	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.73				
CASH	-0.04	0.10	-0.16	-0.16	-0.06	0.21	0.27	0.01	0.03			
(10)	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.53	0.09			
LEV	0.02	-0.20	0.10	0.10	0.02	-0.05	-0.02	-0.02	-0.01	-0.26		
(11)	0.37	0.00	0.00	0.00	0.37	0.01	0.37	0.22	0.74	0.00		

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LOSS	0.10	-0.23	-0.06	-0.06	-0.06	-0.69	-0.47	-0.08	-0.34	-0.17	0.19	
(12)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
BIG4	-0.01	0.07	0.25	0.26	0.17	0.15	0.11	0.00	0.46	-0.03	-0.01	-0.10
(13)	0.79	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.16	0.64	0.00

*,**, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

The dependent variable is the actuarial gains and losses associated with the remeasurement of pension obligations deflated by beginning defined benefit obligations (RMS_DBO). Detailed variable definitions are in Appendix 1.

Table 2
THE EFFECT OF LABOR UNIONS ON ESTIMATIONS OF DBO

Variables	**Column (1)**			**Column (2)**			**Column (3)**		
	coefficients		**t-value**	**coefficients**		**t-value**	**coefficients**		**t-value**
Intercept	-0.24	***	-3.58	-0.25	***	-3.66	-0.24	***	-3.64
UNION	-0.04	**	-2.47	0.04		0.96	0.04		0.96
JOINT				-0.08	**	-2.02	-0.09	**	-2.16
KCTU							0.02		0.88
LgFund_R	-0.09	***	-3.61	-0.09	***	-3.61	-0.09	***	-3.6
ROA	-0.43	***	-3.93	-0.43	***	-3.99	-0.43	***	-3.99
CFO	-0.34	**	-3.19	-0.34	***	-3.21	-0.33	***	-3.13
SGW	-0.14	**	-6.68	-0.14	***	-6.68	-0.14	***	-6.68
LEV	-0.06	*	-1.68	-0.06	*	-1.66	-0.06		-1.6
LOSS	0.00		0.1	0.00		0.04	0.00		0.06
SIZE	0.02	***	3.8	0.02	***	3.87	0.02	***	3.82
BIG4	0.00		-0.12	0.00		-0.03	0.00		-0.05
INDUSTRY	Control			Control			Control		
YEAR	Control			Control			Control		
Obs. Numbers	2,891			2,891			2,891		
Adj. R-square	10.69%			11.21%			10.79%		
F-Value	28.98			27.1			25.21		

Table 3
THE EFFECT OF LABOR UNIONS ON THE PENSION FUNDING RATIO

Panel A: Average funding ratio between firms with and without labor unions

Classification	2011	2012	2013	2014	2015	2016
Unionized firms (N=1,945)	55%	54%	58%	56%	57%	58%
Non-unionized firms (N= 1,683)	47%	50%	52%	53%	52%	55%
Tests of difference in means (t-statistic)	8%***	4%***	5%***	3%***	5%***	3%***

The dependent variable is the ratio of the fair value of plan assets to defined-benefit pension obligations at the beginning of the fiscal year (FUND_R). Detailed variable definitions are in Appendix 1.

Citation Information: Heo, K., & Pae, J. (2022). Labor unions and corporate pension policy. *Academy of Accounting and Financial Studies Journal, 26*(3), 1-14.

Table 3
PANEL B: REGRESSION RESULTS

Variables	Column (1)			Column (2)			Column (3)		
	coefficients		t-value	coefficients		t-value	coefficients		t-value
Intercept	4.04	***	3.22	4.03	***	3.21	4.00	***	3.18
UNION	-0.05		-0.44	0.04		0.15	0.04		0.15
JOINT				-0.10		-0.34	-0.02		-0.07
KCTU							-0.21		-1.39
SIZE	0.36	***	8.29	0.36	***	8.29	0.36	***	8.35
ROA	1.35	*	1.94	1.34	*	1.93	1.33	*	1.91
CFO	0.21		0.26	0.21		0.25	0.15		0.18
CASH	2.31	***	2.75	2.32	***	2.76	2.35	***	2.8
LEV	-2.79	***	-10.6	-2.78	***	-10.59	-2.80	***	-10.64
LOSS	-0.41	***	-2.77	-0.41	***	-2.77	-0.42	***	-2.8
BIG4	-0.18		-1.64	-0.18		-1.63	-0.17		-1.58
INDUSTRY	Control			Control			Control		
YEAR	Control			Control			Control		
Obs. Numbers	3,628			3,628			3,628		
Adj. R-square	15.22%			15.2%			15.22%		
F-Value	14.74			14.42			14.17		

The dependent variable is the ratio of the fair value of plan assets to defined-benefit pension obligations at the beginning of the fiscal year (FUND_R). LEV_Q is the quartile portfolio of firms based on the financial leverage at the beginning of the year. Detailed variable definitions are in Appendix 1.

Table 4
THE EFFECT OF LEVERAGE ON THE RELATION BETWEEN LABOR UNIONS AND FUNDING RATIO

Variables	Column (1)			Column (2)		
	coefficients		t-value	coefficients		t-value
Intercept	3.91	***	3.11	3.59	***	2.85
UNION	-0.07		-0.59	0.72	***	2.85
UNION X LEV_Q				-0.32	***	-5.19
LEV_Q	-0.46	***	-9.72	-0.30	***	-3.49
SIZE	0.36	***	8.31	0.36	***	8.34
ROA	1.07		1.54	1.06		1.53
CFO	-0.10		-0.12	-0.10		-0.12
CASH	2.49	***	2.95	2.64	***	3.13
LOSS	-0.49	***	-3.29	-0.48	***	-3.24
BIG4	-0.17		-1.57	-0.17		-1.54
INDUSTRY	Control			Control		
YEAR	Control			Control		
Obs. Numbers	3,628			3,628		
Adj. R-square	14.79%			15.07%		
F-Value	14.29			14.29		

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Table 5 THE EFFECT OF LABOR UNIONS ON THE LEVEL OF CONTRIBUTIONS TO PLAN ASSET				
Panel A: Means of variables by firms with labor union vs. without labor union				
Variables	Firms with labor union	Firms without labor union	Tests of difference in means	
	(n=206)	(n=33)	t-statistic	
CONTRIBUTE	1.53	1.20	0.33	**

The dependent variable is the amount of contributions to plan assets divided by pension service costs (CONTRIBUTE). Detailed variable definitions are in Appendix 1.

Table 5 Panel B: Regression results									
Variables	Column (1)			Column (2)			Column (3)		
	coefficients		t-value	coefficients		t-value	coefficients		t-value
Intercept	0.86		1.58	0.84		1.53	0.85		1.53
UNION	-0.24	*	-1.84	-0.29		-1.01	-0.29		-1
JOINT				0.05		0.17	0.04		0.14
KCTU							0.02		0.14
LgFund_R	-0.18		-0.77	-0.17		-0.75	-0.17		-0.75
ROA	0.29		0.26	0.33		0.28	0.31		0.27
CFO	1.19		1.46	1.18		1.42	1.19		1.42
SGW	0.17		0.49	0.17		0.5	0.17		0.48
LEV	-0.55	*	-1.81	-0.54	*	-1.76	-0.54	*	-1.76
LOSS	-0.18		-1.03	-0.18		-1.02	-0.18		-1.02
SIZE	0.06	*	1.74	0.07	*	1.74	0.06	*	1.73
BIG4	-0.13		-0.72	-0.13		-0.71	-0.13		-0.71
INDUSTRY	Control			Control			Control		
YEAR	Control			Control			Control		
Obs. Numbers	239			239			239		
Adj. R-square	11.61%			11.23%			10.84%		
F-Value	3.81			3.48			3.2		

REFERENCES

Asthana, S. (1999). Determinants of funding strategies and actuarial choices for defined-benefit pension plans. *Contemporary Accounting Research, 16*(1), 39-74.

Bergstresser, D., Desai, M.A., & Rauh, J.D. (2006). Earnings manipulation, pension assumptions and managerial investment decisions. *The Quarterly Journal of Economics, 121*.

Bronars, S., & Deere, D. (1991). The threat of unionization, the use of debt, and the preservation of shareholder wealth. *The Quarterly Journal of Economics, 106*(1), 231–254.

Chen, H., Kacperczyk, M., & Ortiz-Molina, H. (2012). Do non-financial stakeholders affect the pricing of risky debt? Evidence from unionized workers. *Review of Finance, 16*, 347–383.

Choi, J.U., & Bae, G.S. (2011). The Effect of Labor Unions on Earnings Management. *Korean Management Review, 40*(6), 1549-1575.

Connolly, R.A., Hirsch B.T., & Hirschey, M. (1986). Union rent seeking, intangible capital and market value of the firm. *The Review of Economics and Statistics, 68*, 567-577.

Cullinan. C.P., & Knobett, J.A. (1994). Unionization and accounting choices: An empirical examination. *Journal of Accounting and Public Policy, 13*, 49-78.
Indexed at

DeAngelo, L.E. (1981). Auditor Size and Audit Quality. *Journal of Accounting and Economics, 20*(3), 297–322.

Francis, T., & Schultz, E.E. (2003). Is pension crisis a scapegoat? *The Wall Street Journal*, November 18, C1.

Godwin, H. (1999). An examination of pension actuarial assumptions over the decade following the issuance of FAS 87. *Journal of Pension Planning and Compliance, 25*(1), 62–75.

Citation Information: Heo, K., & Pae, J. (2022). Labor unions and corporate pension policy. *Academy of Accounting and Financial Studies Journal, 26*(3), 1-14.

Godwin, J.H., Goldberg, S.P., & Duchac, J.E. (1996). An empirical analysis of factors associated with changes in pension-plan interest-rate assumptions. *Journal of Accounting, Auditing and Finance, 11*(2), 305-323.

Gopalakrishnan, V., & Sugrue, T.F. (1995). The determinants of actuarial assumptions under pension accounting disclosures. *Journal of Financial and Strategic Decisions, 8*, 35-41.

Heo, K., & Pae, J.H. (2021). Pension Funding Regulations and Actuarial Gains and Losse, *Australian Accounting Review, 96*(31), 35–50.

Heo, K., Chu, J., Kim, J.J., & Pae, J. (2020). Pension Liabilities and Conservative Financial Reporting, *Asia-Pacific Journal of accounting & Economics, 27*(6), 649–666.

Hirsch, B. (1992). Firm investment behavior and collective bargaining strategy. *Industrial Relations, 31*, 95-121.

Jensen, M., & Meckling, W. (1976). Theory of the firm, managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*, 305–360.

Klasa, S., William, F., Maxwell, & Ortiz-Molina, H. (2008). The strategic use of corporate cash holdings in collective bargaining with labor unions. *Working paper*.

Leung, W.S.C., Li, O.Z., & Rui, O.M. (2009). Labor unions and accounting conservatism. *Working paper*.

Liberty, S.E., & Zimmerman, J.L. (1986). Labor union contract negotiations and accounting choices. *The Accounting Review, 61*, 692–712.

Mora, A., & Sabater, A. (2008). Evidence of income-decreasing earnings management before labor negotiations with the firms. *Investigaciones Economicas, 32*, 201-230.

Citation Information: Heo, K., & Pae, J. (2022). Labor unions and corporate pension policy. *Academy of Accounting and Financial Studies Journal, 26*(3), 1-14.