

Operating Flexibility in Unionized Firms

J. K. Yun¹

New York Institute of Technology, USA

ABSTRACT

Although recent studies provide useful insights into the factors affecting the managerial behavior of unionized firms, they do not use samples of actual unionized firms but instead use the unionization rate of each industry with interested variables, such as riskiness of firms. The goal of this study is to compare managerial decisions of unionized firms with those of non-unionized firms in terms of financial reporting and financing. This study makes several contributions to the literature on the operating flexibility of unionized firms vs. non-unionized firms. First, by utilizing direct tests as opposed to the indirect tests used by extant studies, this study can better explain each hypothesis. Second, with the sample firms which have defined benefit plans – which may be a strong incentive for labor unions to sustain future benefits – the results clearly reflect issues of operating flexibility in agency relationships. Third, in the sample used in this study, financial leverage measured by a debt-to-equity ratio for unionized firms is significantly lower than that of non-unionized firms, even though previous studies argue that cost of debt should be lower for unionized firms.

Key Words: operating flexibility, defined benefit plan, unionized firm, Jones Model, debt to equity ratio.

JEL: M4

¹ **Contact:** (Office Phone) 516-686-1173 and (email) jyun04@nyit.edu

1. Introduction

Liberty and Zimmerman (1986) investigated using capital market response methodology whether labor union contract negotiations have an impact on accounting choices of managers. Using annual unexpected earnings and abnormal stock returns to associate with union contract negotiations, they did not find a significant impact of union contract negotiations on accounting choices.

Two decades later, several research studies examined relationships between labor unions and managements' behaviors (Faleye et al., 2006; Chen et al., 2011; Hamm et al., 2013). These recent studies used industry unionization rates as a proxy for unions' ability to affect firms' operations. Yet this study uses actual unionized firms as opposed to non-unionized firms as the sample with defined benefit pension plans. This research explores how management operating flexibility is influenced by labor unions in making decisions for financing and financial reporting. There are two different types of pension plans. One is the defined benefit pension plan (DBP) and the other is the defined contribution pension plan (DCP). A DBP is a type of pension plan in which an employer/sponsor promises a specified monthly benefit on retirement that is predetermined by a formula based on the employee's earnings history and tenure of service and age, rather than depending directly on individual investment returns. Traditionally, many governmental and public entities, as well as a large number of corporations, provide DBPs, sometimes as a means of compensating workers in lieu of increased pay. On the other hand, a DCP is a type of retirement plan in which the employer, employee, or both, make contributions on a regular basis. Individual accounts are set up for participants and benefits are based on the amounts credited to these accounts (through employer contributions and, if applicable, employee contributions) plus any investment earnings on the money in the account. Only employer contributions to the account are guaranteed, not the future benefits.

This study uses firms with DBPs, because DBPs to employees are the most valuable source of future cash flow upon retirement without employee monetary contribution. The cost of DBPs is much higher than the cost of DCPs to the employers (or sponsors). As presented in Table 1, Worker Participation Cost for DBP of union workers per hour is \$3.03, nonunion workers \$2.17. On the other hand Worker Participation Cost for DCP of union workers per hour is \$1.71, nonunion workers \$1.41.

Table1. Defined benefit and defined contribution retirement benefits: Employer costs per employee hour worked for employee compensation, participation, and worker participation costs, private industry workers, March 2012

Characteristics	Employer costs per employee hour worked		Participation (in percent)		Worker participation cost(1)	
	Defined benefit	Defined contribution	Defined benefit	Defined contribution	Defined benefit	Defined contribution
All workers	\$0.43	\$0.60	17	41	\$2.53	\$1.46
Worker characteristic						
Union	2	0.77	66	45	3.03	1.71
Nonunion	0.26	0.58	12	41	2.17	1.41
Footnotes:						

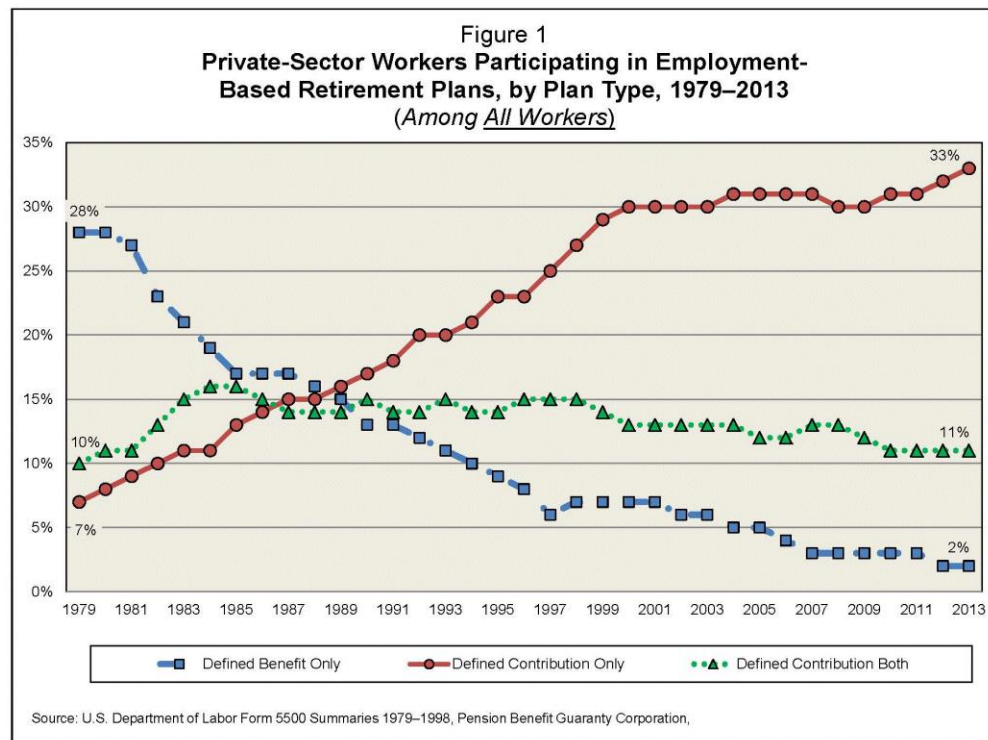
(1) Worker participation cost is a derived cost that equals the employer costs per employee hour worked individual benefit cost (from Employer Costs for Employee Compensation) divided by the individual benefit participation rate.

NOTE: Bolded numbers indicate the higher estimates per category for defined benefit versus defined contribution.

SOURCE: U.S. Bureau of Labor Statistics, National Compensation Survey.

Therefore, employers like to reduce (or freeze) DBPs as much as possible as years go by as evidenced by Figure 1 below.

While managers representing employers have a strong incentive to reduce DBPs, employees do not want to lose their DBPs. If employees are unionized, however, it may not be easy for managers to remove DBPs from the unionized employees because as an agent, the labor union imposes constraints on the operating flexibility of managers. Yet workers in non-unionized firms may not be able to exercise their power as their counterparts in unionized firms may. As evidence, Kim et al. (2015) in their study discovered that two unionized firms completely abolished DBPs, while 14 non-unionized ones removed their DBPs a year after SFAS 158 and the Pension Protection Act of 2006 were adopted. One of the main items in SFAS 158 made underfunded pension an obligation of firms to be reported as part of long-term debt.



Although recent studies provide useful insights into the factors affecting the managerial behavior of unionized firms, they do not use a sample of actual unionized firms but instead use the unionization rate of each industry with interested variables, such as riskiness of firms. Since I use the actual unionized firms with DBP identified from Form 5500, the results from this study provide

more accurate inferences than under previous studies using unionization rate of each industry as a proxy for unionized firms. Multiple regression models using unionization rate of each industry in previous studies may have common problems of measurement, omitted variables and spurious correlation.

The overall goal of this study is to compare managerial decisions of unionized firms with those of non-unionized firms in terms of financial reporting and financing. I obtained data from Form 5500 by Department of Labor to identify firms with DBPs with labor unions (i.e., collective bargaining agreements), matching those with COMPUSTAT and firms without labor unions from 2004 to 2014.

This study makes several contributions to the literature on the operating flexibility of unionized firms vs. non-unionized firms. First, by using direct tests as opposed to indirect tests used by extant studies, this study may can better explain each hypothesis. Second, with the sample firms which have defined benefit plans – which may be a strong incentive for labor unions to sustain future benefits – the results clearly reflect issues of operating flexibility in agency relationships. Lastly, in contrast to the findings of previous research, this study reveals that the debt-equity ratio of unionized firms is not larger than that of non-unionized firms

The remainder of this study contains the following: Section 2 consists of a brief literature review; Section 3 is made up of hypotheses development; Section 4 presents data sources and sample description; Section 5 describes the empirical model and results; Section 6 offers a summary and conclusion.

2. Literature Review

The aforementioned Liberty and Zimmerman (1986) examined whether managers reduced reported earnings during labor contract negotiations relative to earnings released before and after contracts are negotiated. They did not find a significant relationship between labor contract negotiations and managerial action on reducing reported earnings.

Using the sample of firms with labor unions and ESOP (Employee Stock Ownership Plan), Faleye et al. predicted that equity ownership would give labor both a fractional stake in a firm's residual cash flows and a voice in corporate governance. The authors found that the presence of a labor voice in corporate governance is associated with significantly depressed shareholder value, sales growth, and job creation. They also discovered that unionized employees did not stop asking more from the management even though they had a portion of stocks with their firm. The authors analyzed this phenomenon as the present value of future wages and benefits being much larger relative to the present value of labor's equity stake in most cases.

Following the literature in labor economics, Chen et al. (2011) used industry unionization rates as a proxy for unions' ability to affect firms' operations. They showed that firms in more unionized industries had higher costs of equity, measured by the implied cost of equity of Gebhardt, Lee, and Swaminathan (2001). Their results held after they controlled for several firm-level characteristics, including revenue cyclicity, financial leverage, asset tangibility, age, sales growth, size, and return volatility, as well as for the industry capital intensity and its concentration.

They found that unionization was associated with lower operating flexibility in both labor and non-labor production inputs, which further supported their premise that unions have a pervasive impact on firms' ability to adjust both capital and labor inputs.

Bronars et al. (1991) hypothesized and found that firms used debt to protect the wealth of shareholders from the threat of unionization. Matsa (2010), using RTW (Right to Work) laws and unemployment insurance work stoppage provisions as sources of exogenous variation in union

bargaining power, found that collective bargaining increased financial leverage. Furthermore, firms with relatively variable profits, and in turn greater exposure to union rent seeking, responded with greater increases in debt.

Hamm et al. posited that managers attempt to manage earnings downwards to shelter firm resources from rent-seeking labor unions. They predicted that labor unions strengthen managerial incentives for income smoothing. They found that income smoothing activities were positively associated with labor union strength, where such activities are measured by both discretionary income smoothing and R&D investment adjustments. These authors also found evidence that the unionized workforce significantly affected managers' reporting behaviors.

3. Hypotheses Development

For this study, I chose firms with DBPs because DBPs to employees are valuable future cash flow upon retirement. While managers representing shareholders have a strong incentive to reduce DBPs, employees do not want to lose their DBP as much as possible. If employees are unionized, however, it may be more difficult for managers to remove DBPs from the unionized employees because as an agent, the labor union imposes constraints on the operating flexibility of managers. Yet workers in a non-unionized firm may be unable to exercise their powers as easily their counterparts in a unionized firm. By comparing two groups of firms (unionized firms with DBP and non-unionized firms with DBP), this study expects to discover the impact of the presence of unions on behaviors of financial reporting and financing decisions of managers.

Under the agency theory setting in this study, there are three major agents for a firm: shareholders, managers, and a labor union. DBP may be a strong incentive to the labor union offered by the management to neutralize agency costs in firms. Under a unionized firm, management needs to satisfy shareholders of the firm by reducing agency costs that may arise between management and the labor union. The labor union, on the other hand, is conjectured to behave to maximize its own utility by improving the DBP or at least maintaining the plan by exercising its power. Hamm et al. (2013) predicted the following: Managers attempt to manage earnings downwards to shelter firm resources from rent-seeking labor unions. Managers also have incentives to manage earnings upwards in bad times to avoid unions' greater demand for compensation for expected bankruptcy risk perceived from worsening operating performance. This study therefore hypothesizes that both the upper and lower bounds of earnings management are heavily influenced by labor unions. In this regard, the first *null* hypothesis is:

H₀₁: The magnitude of earnings management (measured by the absolute value of residuals of the following model) by managers under unionized firms (UF) is not less than that under non-unionized (NUF) firms.

Under H₀₁, I test whether (Absolute Value of UF Residual (ε_{it} for UFs) < / Absolute Value of NUF Residual (ε_{it} for NUFs)) following Jones (1991), the residual from model

$$TA_{it} = \beta_0 + \beta_1(1 / AT_{it-1}) + \beta_2\Delta REV_{it} + \beta_3PPE_{it} + \varepsilon_{it}$$

where,

TA_{it} : total accruals for firm i

ΔREV_{it} : the change in revenues for firm i from last year to this year

PPE_{it} : the book value of property plant and equipment for firm i in year t

ε_{it} : the discretionary accrual for firm i in year t and this is the number of measurement

for earnings management: If it is a positive number, then it is an income increasing accrual; if it is a negative number, then it is an income decreasing accrual.

Under the unionized firms, managers are conjectured to have less flexibility in upward and/or downward earnings management than non-unionized firms. Furthermore, if any income smoothing activity (as a result of trying to satisfy both shareholders and labor unions) is expected due to the presence of a union in addition to the shareholders, I expect that the variance for the discretionary accruals of unionized firms should be less than that of non-unionized firms. Therefore,

H₀₂: The variance of residuals (ε_{it}) in unionized firms is *not less* than that of non-unionized firms.

Under H₀₂, I test whether the variance of residuals for UF is $< /$ that of NUF.

Based on the extant literature (Bronars et al., 1991; Matsa 2010), it is expected that the Debt/Equity ratio (DER) for UFs should be higher than that for NUFs because of a cheaper cost of debt: Therefore

H₀₃: DER of UFs is not higher than that of NUFs.

Under H₀₃, I test whether DER of UFs is higher than DER of NUFs.

Theoretically, a firm's financial leverage should not be directly related to its systematic risk (β). Yet several prior studies examined the impact of DER on firm's beta. Faff et al. (2002) discovered that the values of levered betas and unlevered betas are quite close, using a time series model. The result implies that financial leverage does not have an impact on firm beta. Chen et al. (2011) also examined whether there was a relationship of firm leverage with beta and did not find a statistically significant relationship. Therefore

H₀₄: DER in general has no relationship with firm beta.

Under H₀₄, I test the correlation among DERs, betas, and cost of equity (COE).

If operating flexibility is constrained by pressure from the union, I can hypothesize that systematic risk for a unionized firm must be greater than that for a non-unionized firm. Thus,

H₀₅: Beta for a unionized firm is not greater than that for a non-unionized firm.

Under H₀₅, I take a mean test to check whether beta for a unionized firm is not greater than that of a non-unionized firm.

4. Data

Data are selected by taking the following steps for the period of 2003-2014:

1. From Form 5500 database, firms with Defined Benefit Pension Plan with Collective Bargaining (Unionized Firms) and with Non Collective Bargaining (Non-Unionized Firms) were initially identified.
2. These identified firms (in Step 1) in Form 5500 were matched with COMPUSTAT firms of December-Ending Fiscal year for each year as shown on Table 2.
3. Firms in "Right-to-Work" states were removed to sort out only unionized firms and non-unionized firms, not those with both.

Table 2. Data

Time Period: 2003-2014	Total Firms	With Unions	Without Unions
Matched Firms with Defined Benefit Pension Plan in Form5500 and 12/31 Year-End COMPUSTAT Data	4,751	1,176	3,575
Firms with missing data	-57	-12	-45
Firms with Regulated Industries	-1,501	-538	-963
Firms with outlying data [Firms outlying in 12-year estimation]	-1,412 [-1,373]	-160 [-144]	-1,252 [-1,229]
Final Sample (for Jones Model for Annual Estimation)	1,781	466	1,315
[Final Sample (for Jones Model for 12-year Estimation)]	[1,820]	[482]	[1,338]
Final Sample for Debt/Equity Ratios	2,133	511	1,622
Final Sample for Beta and DE Ratio Matching	1,596	382	1,214

5. Results

H₀₁: The magnitude of earnings management (measured by the absolute value of residuals of the following model) by managers under unionized firms (UF) is not less than that under non-unionized (NUF) firms.

I take the size of earnings management measured by the magnitude of the absolute value of the Jones model residual. The larger the size of the absolute value of the residual, the bigger the magnitude of earnings management rises. As shown in Table 3-A, I estimated Jones model regression for (1) Annual estimation for 12-year period and (2) 12-year pooled estimation. Under both estimation methods, the magnitude of the absolute value of Jones model residuals for UFs turned out to be less than that for NUFs. The mean differences between the absolute value of UF residuals and that of NUF residuals turned out to be statistically significant. Therefore, H₀₁ is rejected.

Table 3-A Sample Descriptive Statistics – Absolute Value of Jones Model Residuals

	UF-Annual	UF-12yr	NUF-Annual	NUF-12yr
N	466	482	1315	1338
Mean	0.020	0.019	0.022	0.022
Median	0.018	0.018	0.020	0.020
Std. Deviation	0.014	0.013	0.015	0.015
25	0.007	0.008	0.009	0.009

Percentiles	50	0.018	0.018	0.020	0.020
	75	0.031	0.029	0.034	0.033

Table 3-B 12-Year Pooled Regression

	UF Res	NUF Res
Mean	0.019	0.022
Variance	0.0001	0.0002
Observations	482	1338
Hypothesized Mean Difference	0	
df	965	
t Stat	-4.17163	
P(T<=t) one-tail	1.65E-05	
t Critical one-tail	1.646	
P(T<=t) two-tail	3.3E-05	
t Critical two-tail	1.962	

*Significant at 0.001

Table 3-C Annual Regression Table

	UF Res	NUF Res
Mean	0.020	0.022
Variance	0.0002	0.0002
Observations	466	1315
Hypothesized Mean Difference	0	
df	882	
t Stat	-2.997*	
P(T<=t) one-tail	0.001	
t Critical one-tail	1.647	
P(T<=t) two-tail	0.003	
t Critical two-tail	1.96	

*Significant at 0.001

H₀₂: The variance of residuals (ε_{it}) in unionized firms is *not less* than that of non-unionized firms.

As shown in Tables 4-A and 4-B, the variance of residuals for unionized firms turned out to be statistically significantly lower than that for non-unionized firms. The null hypothesis is rejected. These results are consistent with evidence in the existing literature, i.e., the higher the unionization rate, the more income smoothing activities were detected. (Hamm et al. 2013)

Table 4-A Residuals of 12-Yr Pooled Regression

F-Test Two-Sample for Variances		
	UF Res	NUF Res
Mean	0.019	0.022
Variance	0.0002	0.0002
Observations	482	1338
df	481	1337
F	0.763*	
P(F<=f) one-tail	0.0002	
F Critical one-tail	0.882	

* Significant at 0.0002

Table 4-B Residuals of Annual Regression

F-Test Two-Sample for Variances		
	UF Res	NUF Res
Mean	0.020	0.022
Variance	0.0002	0.0002
Observations	466	1315
df	465	1314
F	0.845*	
P(F<=f) one-tail	0.016	
F Critical one-tail	0.881	

* Significant at 0.016

H₀₃: DER of UFs is not higher than that of NUFs.

As shown in Tables 5-A, 5-B, 5-C and 5-D, DER for UFs is less than that for NUFs. Based on extant literature, DER for UFs must be greater than that for NUFs due to a cheaper cost of debt. Even though actual DER for UFs is higher than the corresponding industry average, DER for NUFs is much higher than its corresponding industry average. This implies that NUFs appeared to have been aggressively financed with debts. On the other hand, managers of UFs in the sample must have been so suppressed by union leaders in debt financing that DER for UFs have not turned out

as large as that for NUFs during the 12-year period. This finding may be one of manifestations that the presence of a labor union provides limited operating flexibility of managers in investment decisions, financing decisions, or employment decisions. The result from this present study's sample turned out to be inconsistent with the extant literature; UF DER turned out to be significantly lower than NUF DER.

Table 5-A Descriptive Statistics – Debt/Equity Ratio

	UFDER	NUFDER
N	511	1622
Mean	1.581	2.190
Median	1.373	1.446
Std. Deviation	0.921	2.087
25	0.956	0.805
Percentiles 50	1.373	1.446
75	1.959	2.644

Table 5-B Mean Test for Difference in Debt-to-Equity Ratio (DER)

t-Test: Two-Sample Assuming Unequal Variances

	UFDER	NUFDER
Mean	1.581	2.190
Variance	0.848	4.356
Observations	511	1622
Hypothesized Mean Difference	0	
df	1917	
t Stat	-9.230*	
P(T<=t) one-tail	3.477E-20	
t Critical one-tail	1.646	
P(T<=t) two-tail	6.953E-20	
t Critical two-tail	1.961	

*Significant at 0.0

Table 5-C Mean Difference of UFDER and Corresponding IND AVG

t-Test: Two-Sample Assuming Unequal Variances			
		UFDER	IND AVG
Mean		1.581	1.341
Variance		0.848	0.030
Observations		511	511
Hypothesized Difference	Mean	0	
df		547	
t Stat		5.779*	
P(T<=t) one-tail		6.309E-09	
t Critical one-tail		1.648	
P(T<=t) two-tail		1.262E-08	
t Critical two-tail		1.964	

*Significant at 0.0

Table 5-D Mean Difference of NUFDER and Corresponding IND AVG

t-Test: Two-Sample Assuming Unequal Variances			
		NUFDER	IND AVG
Mean		2.190	1.257
Variance		4.356	0.099
Observations		1622	1622
Hypothesized Difference	Mean	0	
df		1638	
t Stat		17.818*	
P(T<=t) one-tail		1.64E-65	
t Critical one-tail		1.646	
P(T<=t) two-tail		3.28E-65	
t Critical two-tail		1.961	

*Significant at 0.0

H₀₄: DER in general has relationship with firm beta.

Table 6-A Overall Sample Correlations

		DER	BETA
BETA	Pearson		
	Correlation	0.038	
	Sig. (2-tailed)	0.131	
	N	1596	
COE	Pearson		
	Correlation	0.006	0.185**
	Sig. (2-tailed)	0.798	0
	N	1596	1596

** Correlation is significant at the 0.01 level (2-tailed).

Table 6-B Correlations in Unionized Firms

		UFDER	UFBETA
UFBETA	Pearson		
	Correlation	0.121*	
	Sig. (2-tailed)	0.018	
	N	382	
UFCOE	Pearson		
	Correlation	0.000	0.231**
	Sig. (2-tailed)	0.994	0.000
	N	382	382

* Correlation is significant at the 0.05 level (2-tailed).

Table 6-C Correlations in Non-Unionized Firms

		NUFDER	NUFBETA
NUFBETA	Pearson		
	Correlation	0.034	
	Sig. (2-tailed)	0.240	
	N	1214	
NUFCOE	Pearson		
	Correlation	0.013	0.170**
	Sig. (2-tailed)	0.659	0.000
	N	1214	1214

** Correlation is significant at the 0.01 level (2-tailed).

H₀₅: Beta for unionized firm is not greater than that for non-unionized firm.

For all sample firms, no statistically significant correlation is found between DER and BETA. Yet statistically significant correlation is discovered between BETA and COE.

For the subsample of unionized firms, I find statistically significant correlation between DER and BETA but not between DER and COE. This implies that the debt-equity ratio for unionized firms reflects some systematic risk component even though it does not have a direct correlation with COE. On the other hand, for the sample of non-unionized firms, there is no significant correlation between DER and BETA.

In my sample, however, financial leverage measured by the debt-to-equity ratio for unionized firms is significantly lower than that of non-unionized firms even though previous studies argued that the cost of debt should be cheaper for unionized firms. Yet beta and cost of equity for unionized firms have turned out to be greater than those of non-unionized firms albeit not statistically significant. This finding implies that a higher financial leverage measured by the debt-to-equity ratio does not necessarily result in higher beta (systematic risk) for non-unionized firms.

Table 7-A Descriptive Statistics for Debt/Equity Ratio, Beta, and Cost of Equity

	UFDER	UFBETA	UFCOE	NUFDER	NUFBETA	NUFCOE
N	382	382	382	1214	1214	1214
Mean	1.146	1.119	0.135	1.512	1.088	0.119
Median	1.121	1.028	0.124	1.224	0.984	0.120
Std. Deviation	0.426	0.631	0.232	1.064	0.597	0.248
Percentiles 25	0.862	0.707	0.065	0.748	0.649	0.065
50	1.121	1.028	0.124	1.224	0.984	0.120
75	1.491	1.411	0.239	1.929	1.436	0.223

Table 7-B Mean Difference between UF BETA & NUF BETA

	UF Beta	NUF BETA
Mean	1.119	1.089
Variance	0.398	0.357
Observations	382	1214
Hypothesized Mean Difference	0	
df	611	
t Stat	0.832	
P(T<=t) one-tail	0.203	
t Critical one-tail	1.647	
P(T<=t) two-tail	0.405	
t Critical two-tail	1.964	

* Not Significant

Table 7-C Mean Difference between UF COE & NUF COE

	UF COE	NUF COE
Mean	0.135	0.119
Variance	0.054	0.061
Observations	382	1214

Hypothesized Mean Difference	0
df	677
t Stat	1.131
P(T<=t) one-tail	0.129
t Critical one-tail	1.647
P(T<=t) two-tail	0.258
t Critical two-tail	1.963

* Not Significant

6. Summary and Conclusion

In this research study, I have found that:

- (1) Under both estimation methods (annual estimation for 12-year period and 12-year pooled estimation), the size of earnings management measured by the magnitude of the absolute value of Jones model residuals for UFs turned out to be less than that for NUFs. The mean differences between the absolute value of UF residuals and that of NUF residuals turned out to be statistically significant. The magnitude of earnings management by managers under unionized firms (UF) is less than that under non-unionized (NUF) firms.
- (2) The variance of Jones Model residuals for unionized firms turned out to be statistically significantly lower than that for non-unionized firms. This result is consistent with the evidence in the existing literature, i.e., the higher the unionization rate, the more income smoothing activities were detected. (Hamm et al. 2013)
- (3) Based on extant literature, DER for UFs must be greater than that for NUFs due to a cheaper cost of debt. However, the result from the samples in this study is contrary to the existing discovery. Even though actual DER for UFs is higher than the corresponding industry average, DER for NUFs is much higher than its corresponding industry average. This implies that NUFs appeared to have been aggressively financed with debts. On the other hand, managers of UFs in the sample may have been so suppressed by union leaders in debt financing that DER for UFs has not turned out to be as large as that for NUFs during the 12-year period. This finding may be one of manifestations that the presence of a labor union provides limited operating flexibility of managers in investment decisions, financing decisions, or employment decisions.
- (4) Theoretically, a firm's financial leverage should not be directly related to its systematic risk (β). Yet several prior studies examined the impact of DER on firm's beta. Faff et al. (2002) discovered that values of levered betas and unlevered betas were quite close, using a time series model yet with no impact on a firm's systematic risk. Chen et al. (2011) also examined whether there was a relationship of firm leverage with beta and did not find a statistically significant relationship. As existing studies have revealed, the result from the sample in this study does not show significant association between DER and firm Beta.
- (5) For overall sample firms, no statistically significant correlation is found between DER and BETA. Yet there is statistically significant correlation between BETA and COE. For the subsample of unionized firms, there is statistically significant correlation between DER and BETA but not between DER and COE. This implies that the debt-equity ratio for unionized firms reflects some systematic risk component even though it does not have a direct correlation with COE. On the other hand, for the sample of non-unionized firms, there is no significant correlation found between DER and BETA.

The sample used in this study does, however, find that financial leverage measured by debt-to-equity ratio for unionized firms is significantly lower than that of non-unionized firms. This is contrary to previous studies which have argued that the cost of debt should be cheaper for unionized firms. However, beta and cost of equity for unionized firms have turned out to be greater than those of non-unionized firms albeit not statistically significant. This finding implies that a higher financial leverage measured by debt-to-equity ratio does not necessarily result in higher beta (systematic risk) for non-unionized firms.

The above findings lead me to believe that operating flexibility of managers is bound with the presence of labor unions. First, the magnitude of earnings management measured by both the absolute value of residuals and the variance of residuals from the accruals model is less under unionized firms than non-unionized firms. In other words, management cannot conduct operations too high or too low in terms of earnings management due to being closely monitored by the labor unions. This may be the manifestation of more smoothing of earnings in unionized firms. Second, even though some extant research studies found that the cost of debt for the unionized firms was lower due to a “fixed rent” notion being applied to unionized firms, the debt-to-equity ratios in this study turned out to be significantly lower than those of non-unionized firms. This result implies that the labor unions force managers not to get too much debt even they knew the cost of debt is lower for the firms they are working for. Third, the debt-to-equity ratios (DERs) of unionized firms turned out to be significantly correlated with the systematic risk (β) of the firms even though the debt-to-equity ratios are not directly correlated with the cost of capital. This implies that the presence of labor unions may have caused significant correlations of DERs with the systematic risk of the firms. Lastly, the cost of equity for unionized firms turned out to be greater than that of non-unionized firms albeit not statistically significant.

I acknowledge that the sample sizes used in this study is relatively small and specific (unionized firms with defined benefit pension plan). The same results may not be warranted under the unionized firms with different types of less strong incentives other than DBP plans.

REFERENCES:

- Bronars, S. G., and D. R. Deere. "The Threat of Unionization, the Use of Debt, and the Preservation of Shareholder Wealth." *Quarterly Journal of Economics*, 106 (1991), 231–254.
- Faleye, O., V. Mehrotra, and R. Morck. When Labor has a Voice in Corporate Governance. 2006. *Journal of Financial and Quantitative Analysis* 41 (3): 489-510.
- Chen H., Marcin M. Kacperczyk and H. Ortiz-Molina, Labor Unions, Operating Flexibility, and the Cost of Equity, *Journal of Financial and Quantitative Analysis*, 2011, 46 (1), 25-58.
- Faff, R W, R. D. Brooks, Y. K. Ho, "New evidence on the impact of financial leverage on beta risk: A time-series approach," *North American Journal of Economics and Finance*; Greenwich 13.1 (May 2002): 1-20.
- Gebhardt, William R., Charles M. C. Lee and Bhaskaran Swaminathan, "Toward an Implied Cost of Capital," *Journal of Accounting Research*, Vol. 39, No. 1 (June, 2001), pp. 135-176.
- Hamm S., B. Jung and W. Lee, Labor Unions and Income Smoothing, November 2013, Working paper.
- Kim, J., M. Liu and J. K. Yun, "Regulatory Scrutiny, Labor Unions, and Pension Freezes." *Journal of Business and Accounting*, Volume 8, Number 1, Fall 2015, 3-14.
- Liberty S. and J. Zimmerman, Labor Union Contract Negotiations and Accounting Choices, *The Accounting Review*, 1986, 61 (4), 692-712.
- Matsa, D. A. "Capital Structure as a Strategic Variable: Evidence from Collective Bargaining." *Journal of Finance*, 65 (2010), 1197–1232.