

An Empirical Study of the Value Relevance of Accumulated Benefit Obligation: Evidence from Japan

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Abstract

This study aims to examine the value relevance of accumulated benefit obligation (ABO) compared with projected benefit obligation (PBO). The sample consists of Japanese firms that have adopted the Statement of Financial Accounting Standards (SFAS) No. 158. This study finds that, first, both PBO and ABO have value relevance post SFAS No. 158. Second, ABO has more value relevance than PBO. Third, the explanatory power of ABO is higher than that of PBO when investors make decisions on firms with larger future salary increases. A firm will incur ABO at most if a settlement or a curtailment occurs. The disclosure of ABO enables users to take the effect of settlement or curtailment into consideration. This study supports the disclosure of ABO.

Keywords: Accumulated Benefit Obligation (ABO), Value relevance, Disclosure, SFAS No. 158, Japan

1. Introduction

Pension obligation is the present value of the benefits based on an employee's service to a particular date. The funded status of the pension benefits represents the difference between plan assets and pension obligations, and the difference is reflected in the balance sheet (FASB 2010a, par. 4). There are three pension obligation concepts based on salary levels and the vesting. Accumulated benefit obligation (ABO) is calculated considering the current salary levels (FASB 1985, par. 18). ABO is the sum of vested benefit obligation (VBO) and unvested benefits. ABO and VBO provide information about the obligation that a firm would incur if a defined benefit plan were discontinued (FASB 1985, par. 18). Projected benefit obligation (PBO) is calculated under the final salary levels (FASB 1985, par. 17). PBO is the sum of ABO and future salary increases. The Financial Accounting Standards Board (FASB) has considered which pension obligation concepts should be adopted as a recognized item. In 2006, the FASB issued the Statement of Financial Accounting Standards (SFAS) No. 158: *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans — an amendment of FASB Statements No. 87, 88, 106, and 132(R)*. PBO is adopted

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as a recognized item in the SFAS No. 158 (FASB 2010a, par. 4). ABO is adopted only as a disclosure item according to SFAS No. 158¹.

After considering disclosure items, in 2014, the FASB issued the Exposure Draft: Conceptual Framework for Financial Reporting Chapter 8: *Notes to Financial Statements* (2014ED). The FASB outlined the items a firm had to include as disclosure items. After that, the FASB considered the disclosure items to add or remove according to the 2014ED. It suggested removing ABO from the disclosure items in the Exposure Draft: *Compensation-Retirement Benefits-Defined Benefit Plans-General (Subtopic 715-20) Changes to the Disclosure Requirements for Defined Benefit Plans* (2016ED). The FASB considered whether ABO had more value relevance than PBO. The FASB received many opinions on removing ABO from disclosure items. If ABO were removed from disclosure items, a firm would have to include only PBO in disclosure items.

There is no evidence that ABO has more value relevance than PBO post SFAS No. 158. In Japan, some firms have adopted the U.S. GAAP. Do firms not need to disclose ABO? Disclosure of only PBO can provide information useful to those who use financial statements in making decisions. This study examines the value relevance of ABO compared with PBO. The sample consists of Japanese firms that have adopted SFAS No. 158.

2. FASB's Consideration of Disclosure Items and ABO

2.1 FASB's consideration of disclosure items

The FASB cautioned that excessive disclosure items might cause users to overlook important information and that they might be burdensome for reporting firms (FASB 2014, par. D16). The FASB limited the range of disclosure items in three ways: relevance, cost constraint, and future-oriented information (FASB 2014, pars. D17-31). The FASB then defined three disclosure types (FASB 2014, par. D32)². Some users can understand recognized items without additional information (FASB 2014, par. D34), but most need additional information. The FASB opined that the recognized items should have been explained to enable users to understand the nature of the underlying phenomenon as well as related, significant uncertainties (FASB 2014, par. D37). Additional information about the recognized items includes alternative measurements and information to support those measurements (FASB 2014, par. D38). The FASB stated that alternative measures were useful in certain

¹ In the SFAS No. 87: *Employers' Accounting for Pensions*, ABO is adopted as a recognized item when ABO exceeds the fair value of plan assets (FASB 1985, pars. 36-38). However, this treatment is not permitted in SFAS No. 158.

² Disclosure types are additional information about the recognized items, information about the reporting firms, and information about other past events and current conditions and circumstances that can affect a firm's cash flows.

circumstances, and that users might have different needs and thus might need different measures (FASB 2014, par. BC8). The FASB then issued the Conceptual Framework for Financial Reporting Chapter 8: *Notes to Financial Statements*.

2.2 FASB's consideration of ABO

ABO is the alternative measure of PBO. In the 2016ED, the FASB considered whether the disclosure of ABO was useful in assessing prospects for cash flows (FASB 2016a, par. BC11). After consideration, FASB suggested that ABO should have been removed from disclosure items as ABO did not represent future cash flows when defined benefit plans were not settled or curtailed, and that PBO was remeasured in case of settlement or curtailment (FASB 2016a, par. BC12).

A total of 34 comment letters were sent to the FASB. In analyzing the letters, I found that 21 approved of the removal of ABO from disclosure items, and that eight letters disapproved of it. The reasons for the approval were as follows (FASB 2016b).

1. The elimination of ABO from disclosure items will not result in the elimination of decision-useful information.
2. PBO includes assumptions of future salary increases and is different from ABO.
3. PBO is adopted as a recognized item.

PBO includes forecast information on future cash flows and is adopted as a recognized item under the SFAS No. 158. On the other hand, the reasons of the disapproval were as follows (FASB 2016b).

1. ABO provides users with useful information on the obligation firms will incur if defined benefit plans are settled or curtailed.
2. ABO is the most consistent with the remeasurement of PBO resulting from a defined benefit plan's settlement or curtailment. ABO will provide users with relevant information if the use of the plan is limited.
3. ABO is the actuarial present value of future benefits attributed to an employee's services rendered till a particular date.
4. ABO is an intermediate step in the calculation of PBO. The cost to disclose ABO is minimal.

Specifically, the main reason for retaining ABO is the usefulness of the information it provides. If a settlement or a curtailment occurs, a firm will incur ABO at most and not future salary increases. The disclosure of ABO enables users to take the effect of settlement or curtailment into consideration. Some believe that ABO provides users with information useful in making decisions. A comment relating to reason 3 states that PBO overstates the present value of the benefits (FASB 2016b, comment letter No. 15).

The FASB considered the removal of ABO from disclosure items again and decided to

keep the disclosure of ABO (FASB 2018c, par. BC36)³. Consequently, firms are required to disclose both ABO and PBO.

3. Literature Review

Studies have examined the value relevance of three pension obligations. In the United States, VBO and ABO had value relevance prior to SFAS No. 87 (Oldfield 1977; Feldstein and Seligman 1981; Feldstein and Morck 1982; Daley 1984; Dhaliwal 1986; Landsman 1986) and PBO has value relevance post SFAS No. 87 (Gopalakrishnan and Sugrue 1993; Gopalakrishnan 1994; Picconi 2006; Hann et al. 2007b). Some studies also argue that VBO, ABO, and PBO have value relevance post SFAS No. 87 in Japan (Nakano 1997; Sakurai 1998; Nakano 1999; Nakano 2000).

Some studies have examined the value relevance more deeply. Barth (1991) compared the value relevance between ABO and PBO. The study provides evidence that there are cases when users think ABO is more important than PBO and vice versa. Yu (2016) examined the role of future salary increases from 2003 to 2008. The study provides evidence that firms with larger future salary increases are likely to settle or curtail their defined benefit plans, and that the value relevance of firms with settlement or curtailment is positively associated with future salary increases.

If a settlement or a curtailment occurs, a firm will incur ABO at most; it will not need to incur future salary increases. Thus, I argue users will use ABO more than PBO if they make decisions on firms with larger future salary increases. These studies have not examined the value relevance based on the size of future salary increases. ABO is treated only as a disclosure item post SFAS No. 158. PBO is the only pension obligation treated as a recognized item post SFAS No. 158. Thus, this study aims to examine whether firms need to disclose ABO post SFAS No. 158.

4. Hypothesis Development and Research Design

4.1 Hypothesis development

The objective of financial reporting is to provide financial information that is useful to financial statement users in making decisions (FASB 2010b, pars. OB2-OB11). Users need information to help them assess firms' future cash flows (FASB 2010b, par. OB3). Previous studies have examined the decision-making of investors as reflected in stock prices. The current study also examines investors' decision-making. Firms usually incur PBO. Thus, I argue that PBO can be used to help investors assess a firm's future pension cash flows. On the other hand, ABO is the alternative measure of PBO. It is not certain whether a firm will

³ All members of the FASB approved the disclosure of ABO (FASB 2018b).

settle or curtail its defined benefit plan in the future. However, ABO provides information to help users assess the obligation firms will incur if defined benefit plans are settled or curtailed. Thus, I argue that ABO is useful in terms of investors' decision-making. Previous studies provide evidence that PBO and ABO have value relevance under SFAS No. 87. The current study examines the value relevance of PBO and ABO under SFAS No. 158. I therefore formulate the following hypotheses.

Hypothesis 1: PBO has value relevance.

Hypothesis 2: ABO has value relevance.

The FASB regards alternative measures as useful information in certain circumstances. Previous studies provide important evidence as follows. First, there are cases when investors think ABO is more important than PBO and vice versa. Second, firms with larger future salary increases are likely to settle or curtail their defined benefit plans. It is highly possible that firms with larger future salary increases will incur not PBO but ABO. Thus, I argue that investors will use ABO more than PBO if they make decisions on firms with larger future salary increases. Future salary increases are included in PBO, and they are treated as a recognized item. Thus, the explanatory power of ABO will be different from that of PBO if a firm's future salary increases are larger. I therefore formulate the following hypotheses.

Hypothesis 3: ABO has more value relevance than PBO if the firm's future salary increases are larger.

Hypothesis 4: The explanatory power of ABO is higher than that of PBO if the firm's future salary increases are larger.

4.2 Research design

Many previous studies employ market value as the dependent variable, and both balance sheet items and income statement items as explanatory variables (Ohlson 1995; Barth et al. 1998; Harris and Muller 1999; Goncharov and Hodgson 2011; Dong et al. 2014; Mechelli and Cimini 2014). The value relevance of pension obligations has been similarly examined (Nakano 2000; Hann et al. 2007a; Hann et al. 2007b). Such studies provide evidence that both balance sheet and income statement items have value relevance. They also suggest that multicollinearity occurs between pension assets and pension obligations, and they set the difference as an explanatory variable (Nakano 1997; Nakano 1999). Thus, this study employs the following regression models.

$$MVE_{it} = \alpha_0 + \alpha_1(ASSETS-LIABILITY)_{it} + \alpha_2(PA-PBO)_{it} + \alpha_3NI_{it} + \alpha_4R\&D_{it} + \alpha_5DYear_{it} + \varepsilon_{it} \quad (1)$$

$$MVE_{it} = \beta_0 + \beta_1(ASSETS-LIABILITY)_{it} + \beta_2(PA-ABO)_{it} + \beta_3NI_{it} + \beta_4R\&D_{it} + \beta_5DYear_{it} + \varepsilon_{it} \quad (2)$$

MVE_{it} : Market Value of firm i in year t

$ASSETS_{it}$: Total Assets excluding prepaid pension assets of firm i in year t

$LIABILITY_{it}$: Total Liabilities excluding accrued pension liabilities of firm i in year t

PA_{it} : Pension Assets of firm i in year t

PBO_{it} : PBO of firm i in year t

ABO_{it} : ABO of firm i in year t

NI_{it} : Net Income before excluding taxes of firm i in year t

$R\&D_{it}$: Research and Development Expenses of firm i in year t

$DYear_{it}$: Year Dummies of firm i in year t

All variables except $Dyear_{it}$ are deflated by the total assets at the beginning of the fiscal year. Means and standard deviations differ depending on variables. This study examines the hypotheses by standardizing the coefficients and t-values. Model (1) is based on PBO and Model (2) on ABO. Hypothesis 1 and 2 are tested using the coefficients of pension obligations. I argue that PBO and ABO have value relevance post SFAS No. 158; therefore, I expect that $\alpha_2 > 0$ and $\beta_2 > 0$. Research and development expenses ($R\&D_{it}$) and the fiscal year ($Dyear_{it}$) are controlled according to previous studies (Hann et al. 2007a; Hann et al. 2007b; Yu 2013). Hypothesis 3 is tested by comparing α_2 with β_2 . Both coefficients are assumed to be different. Paired t-test and Wilcoxon signed rank test (Spatz 1997, pp. 307-332; Nakagomi 2006, pp. 134-142) are also employed. Adjusted R squared (Adj. R^2) is compared between Model (1) and Model (2), and Akaike's information criterion (AIC) is also used. The model with the smaller AIC value is the better model⁴. For Hypothesis 4, the Vuong test is adopted.

5. Empirical Results

5.1 Sample selection and descriptive statistics

The sample consists of Japanese firms disclosing both PBO and ABO under SFAS No. 158. I obtained financial data except ABO from Nikkei NEEDS Financial Data. I obtained ABO data from the database eol⁵. I also obtained stock prices data from Stock Price CD-ROM (2019). Japanese firms under U.S. GAAP adopted SFAS No. 158 as of the end of the fiscal year ending after December 15, 2006. Study period is from 2007 through 2018, for which data are available. The fiscal year-end is limited to March. In Japan, firms issue public Annual Securities Reports within three months after fiscal year-end. Investors can only obtain ABO from the disclosure items in these reports. Thus, I argue stock prices in the three months after the fiscal year-end reflect investors' decision-making on disclosure items. I excluded firms for which fewer than 12 fiscal months were available, banks and

⁴ Refer to Akaike (1976) and Akaike et al. (2007).

⁵ See the PRONEXUS website at https://www.pronexus.co.jp/solution/database/eol_eng.html (accessed on May 11, 2019).

insurance firms, and firms whose stock prices or the total assets at the beginning of the fiscal year were not available. The bottom and top 1 percent of all variables except $Dyear_{it}$ are deleted to remove the effect of outliers. The main sample includes 248 observations.

This study also examines the value relevance based on the size of future salary increases. Table 1 reports descriptive statistics. $(PBO-ABO)_{it}$ represents the variable of future salary increases. In the distribution of $(PBO-ABO)_{it}$, the range from Q3 to the maximum is 0.011 while the range from minimum to Q3 is 0.009. The smaller $(PBO-ABO)_{it}$ suggests that the effect of future salary increases is small. I think the explanatory power between Model (1) and Model (2) will not be different if the effect of future salary increases is small. Therefore, this study sets the samples with the larger future salary increases as a subsample. Hypothesis 3 and 4 are tested using the subsample, which includes 62 observations.

Table 2 shows the correlation coefficients of the main variables. The correlations between MVE_{it} and other variables are positive and significant ($p < 0.01$). Thus, I expect all variables

Table 1. Descriptive Statistics (N=248)

	Mean	Std. Dev.	Range	Minimum	Q1	Median	Q3	Maximum
MVE_{it}	0.780	0.486	2.378	0.156	0.415	0.659	0.978	2.533
$ASSETS_{it}$	1.031	0.078	0.450	0.815	0.983	1.027	1.073	1.265
$LIABIRITY_{it}$	0.452	0.189	0.775	0.092	0.284	0.465	0.597	0.867
PA_{it}	0.106	0.068	0.279	0.007	0.050	0.096	0.147	0.287
PBO_{it}	0.145	0.093	0.360	0.013	0.066	0.119	0.223	0.373
ABO_{it}	0.140	0.092	0.354	0.012	0.063	0.117	0.214	0.366
$(PBO-ABO)_{it}$	0.006	0.005	0.020	0.000	0.002	0.004	0.009	0.020
NI_{it}	0.057	0.043	0.251	-0.104	0.030	0.057	0.085	0.147

Table 2. Pearson and Spearman Correlation Coefficients (N=248)

	MVE_{it}	$(ASSETS-LIABIRITY)_{it}$	$(PA-PBO)_{it}$	$(PA-ABO)_{it}$	NI_{it}
MVE_{it}			0.706**	0.219**	0.245**
$(ASSETS-LIABIRITY)_{it}$	0.647**			0.181**	0.193**
$(PA-PBO)_{it}$	0.210**	0.196**			0.975**
$(PA-ABO)_{it}$	0.225**	0.209**	0.993**		0.212**
NI_{it}	0.646**	0.515**	0.296**	0.311**	

The upper and lower diagonals show the Spearman and Pearson correlations, respectively.

** : $p < 0.01$ (two-tailed)

to be significantly positive. $(PA-ABO)_{it}$ has more correlation with MVE_{it} than $(PA-PBO)_{it}$. I also expect $(PA-ABO)_{it}$ to have more value relevance than $(PA-PBO)_{it}$.

5.2 Main results

Table 3 presents the main results. According to the main sample, all variables are positive and significant. The coefficient of $(PA-PBO)_{it}$ is 0.134 and significant ($p < 0.05$), suggesting that an increase in PBO_{it} leads to the decline in MVE_{it} . PBO has value relevance post SFAS

Table 3. Regression Results from Main sample and Subsample

	Expected Signs	Main sample		Subsample	
		Model (1) Coefficient (t-value)	Model (2) Coefficient (t-value)	Model (1) Coefficient (t-value)	Model (2) Coefficient (t-value)
Intercept	+/-	(0.537)	(0.511)	(-0.427)	(-0.413)
$(ASSETS-LIABILITY)_{it}$	+	0.374 (7.342)***	0.372 (7.293)***	0.214 (1.802)*	0.210 (1.802)*
$(PA-PBO)_{it}$	+	0.134 (2.507)**		0.438 (3.186)***	
$(PA-ABO)_{it}$	+		0.139 (2.595)**		0.465 (3.472)***
NI_{it}	+	0.465 (9.211)***	0.463 (9.161)***	0.316 (2.637)**	0.306 (2.587)**
$R\&D_{it}$	+/-	0.227 (4.262)***	0.230 (4.316)***	0.342 (2.924)***	0.353 (3.080)***
$DYear_{it}$		included	included	included	included
Adj.R ²		0.576	0.577	0.487	0.502
AIC		140.939	140.488	47.655	45.900
Vuong test		-0.529 (Model (1) \div Model (2))		-2.482** (Model (1) < Model (2))	
N		248		62	

$(PA-PBO)_{it}$ vs $(PA-ABO)_{it}$	
<u>paired t-test</u>	
	t-value=-18.023***
	t-value=-35.261***
<u>Wilcoxon signed rank test</u>	
	z-value=-13.120***
	z-value=-6.846***

***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.1$. (two-tailed)

No. 158; therefore, Hypothesis 1 is accepted. The coefficient of $(PA-ABO)_{it}$ is 0.139 and significant ($p < 0.05$), suggesting that an increase in ABO_{it} leads to the decline in MVE_{it} . ABO has value relevance post SFAS No. 158; therefore, Hypothesis 2 is accepted. Furthermore, Hypothesis 1 and 2 are more clearly supported in the subsample. The coefficients of $(PA-PBO)_{it}$ and $(PA-ABO)_{it}$ are significant ($p < 0.01$).

The coefficient of $(PA-ABO)_{it}$ is higher than that of $(PA-PBO)_{it}$. In the subsample, the coefficient of $(PA-ABO)_{it}$ is 0.465 (t-value=3.472) while that of $(PA-PBO)_{it}$ is 0.438 (t-value=3.186). In the paired t-test, the t-value of -35.261 is significant ($p < 0.01$), suggesting that the value relevance of $(PA-ABO)_{it}$ is different from that of $(PA-PBO)_{it}$. In the Wilcoxon signed rank test, the z-value of -6.846 is significant ($p < 0.01$). These results indicate that ABO_{it} has more value relevance than PBO_{it} in the subsample. Thus, Hypothesis 3 is accepted. The result from the main sample also indicates that ABO_{it} has more value relevance than PBO_{it} . In the main sample, the coefficient of $(PA-ABO)_{it}$ is higher than that of $(PA-PBO)_{it}$, and the paired t-test and the Wilcoxon signed rank test suggest that the value relevance of $(PA-ABO)_{it}$ is different from that of $(PA-PBO)_{it}$.

The explanatory power of ABO is not different from that of PBO in the main sample. Adj. R^2 for Models (1) and (2) is 0.576 and 0.577, respectively; therefore, Adj. R^2 in Model (2) is slightly higher than that in Model (1). The AIC in Model (2) is smaller and better than that in Model (1), suggesting that Model (2) based on ABO fits the dependent variable MVE_{it} better than Model (1) based on PBO. However, the Vuong test gives a value of -0.529, which is insignificant. Table 1 indicates that the main sample includes many samples with smaller future salary increases ($(PBO-ABO)_{it}$). It is unlikely that firms with smaller future salary increases settle or curtail their defined benefit plans, and they will incur not ABO but PBO. The explanatory power in the main sample results from many samples with smaller future salary increases. On the other hand, the explanatory power of ABO is higher than that of PBO in the subsample. Adj. R^2 for Models (1) and (2) is 0.487 and 0.502, respectively. AIC in Model (2) is smaller and better than that in Model (1). The Vuong test gives a value of -2.482, which is significant ($p < 0.05$). Previous studies provide evidence that firms with larger future salary increases are likely to settle or curtail their defined benefit plans. If a settlement or a curtailment occurs, a firm will incur ABO at most. This result provides evidence that investors use ABO more than PBO when deciding on firms with larger future salary increases. Thus, Hypothesis 4 is accepted.

5.3 Additional analysis

The regression results of Table 3 include the sample for the transition year of SFAS No. 158. Previous studies excluded this because value relevance was sensitive to the transition year of accounting standards (Yu 2013). Therefore, this study excluded the transition year of

SFAS No. 158 and examined four hypotheses. Table 4 shows the results of additional analysis.

In the main sample, all variables except the intercepts are positive and significant. The coefficient of $(PA-PBO)_{it}$ is 0.132, which is significant ($p < 0.05$). The coefficient of $(PA-ABO)_{it}$ is 0.138, which is significant ($p < 0.05$). The results suggest that PBO and ABO have value relevance post SFAS No. 158; therefore, Hypotheses 1 and 2 are accepted. Furthermore, Hypotheses 1 and 2 are more clearly supported in the subsample.

Table 4. Regression Results excluding the transition year of SFAS No. 158

	Expected Signs	Main sample		Subsample	
		Model (1) Coefficient (t-value)	Model (2) Coefficient (t-value)	Model (1) Coefficient (t-value)	Model (2) Coefficient (t-value)
Intercept	+/-				
		(-0.957)	(-0.953)	(-0.925)	(-0.890)
$(ASSETS-LIABILITY)_{it}$	+	0.412 (7.564)***	0.410 (7.524)***	0.297 (2.331)**	0.288 (2.301)**
$(PA-PBO)_{it}$	+	0.132 (2.261)**		0.411 (2.848)***	
$(PA-ABO)_{it}$	+		0.138 (2.349)**		0.448 (3.177)***
NI_{it}	+	0.398 (7.263)***	0.396 (7.227)***	0.241 (1.861)*	0.234 (1.841)*
$R\&D_{it}$	+/-	0.224 (3.867)***	0.227 (3.921)***	0.327 (2.603)**	0.347 (2.806)***
$DYear_{it}$		included	included	included	included
Adj.R ²		0.564	0.564	0.492	0.509
AIC		105.776	105.370	40.568	38.692
Vuong test		-0.478 (Model (1) \div Model (2))		-3.306*** (Model (1) < Model (2))	
N		221		55	
$(PA-PBO)_{it}$ vs $(PA-ABO)_{it}$					
<u>paired t-test</u>					
			t-value=-16.815***	t-value=-33.241***	
<u>Wilcoxon signed rank test</u>					
			z-value=-12.384***	z-value=-6.451***	

***: $p < 0.01$. **: $p < 0.05$. *: $p < 0.1$. (two-tailed)

The coefficient of $(PA-ABO)_{it}$ is higher than that of $(PA-PBO)_{it}$. In the subsample, the coefficient of $(PA-ABO)_{it}$ is 0.448 (t-value=3.177) while that of $(PA-PBO)_{it}$ is 0.411 (t-value =2.848). In the paired t-test, the t-value is -33.241, which is significant ($p < 0.01$). In the Wilcoxon signed rank test, the z-value is -6.451, which is significant ($p < 0.01$). These results indicate that ABO_{it} has more value relevance than PBO_{it} in the subsample; therefore, Hypothesis 3 is accepted. The results from the main sample also indicate that ABO_{it} has more value relevance than PBO_{it} .

The explanatory power of ABO is not different from that of PBO in the main sample. On the other hand, the explanatory power of ABO is higher than that of PBO in the subsample. Adj. R^2 for Models (1) and (2) is 0.492 and 0.509, respectively. AIC in Model (2) is smaller and better than that in Model (1). The Vuong test is -3.306 and significant ($p < 0.01$). This result provides evidence that investors use ABO more than PBO if they make decisions on firms with larger future salary increases. Thus, Hypothesis 4 is accepted.

Additional analysis confirms that all four hypotheses are accepted.

6. Summary and Conclusion

This study examines the value relevance of ABO compared with PBO. The study used a sample of Japanese firms that had adopted SFAS No. 158. ABO is treated only as a disclosure item under SFAS No. 158. In the 2014ED, the FASB considered which disclosure items firms had to include. The FASB then suggested removing ABO from disclosure items. Considering comment letters, FASB finally decided to keep the disclosure of ABO. The main point of discussion was whether ABO was more useful than PBO in assessing prospects for cash flows. Considering previous studies, I think the value relevance of ABO is different from that of PBO in the size of future salary increases. This study provides the following evidence. First, PBO and ABO have value relevance post SFAS No. 158. Second, ABO has more value relevance than PBO. Third, the explanatory power of ABO is higher than that of PBO when investors make decisions on firms with larger future salary increases.

ABO is the alternative measure of PBO. The FASB stated that alternative measures were useful in certain circumstances. This study provides evidence that ABO is more useful than PBO in investors' decision-making in certain cases. PBO is the only pension obligation concept treated as a recognized item under SFAS No. 158. However, a firm will incur ABO at most if a settlement or a curtailment occurs. The disclosure of ABO enables users to take the effect of settlement or curtailment into consideration. Thus, this study supports the disclosure of ABO.

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