Chapter 17
Pensions and Other Employee Future Benefits

L. Problems

P17-1. ***Suggested solution:***

		Defined contribution plans	Defined benefit plans
a.	Must use a pension trust to hold the plan's assets.	✓	✓
b.	Transfers risk from retirees to plan sponsors.		✓
c.	Allows employees to contribute to pension plan.	✓	✓
d.	Can be underfunded or overfunded.		✓
e.	Provides a guaranteed amount of retirement income.		✓
f.	Provides a guaranteed amount of plan funding.	✓	

P17-2. ***Suggested solution:***

Expected annual benefits earned per year of service	$ 50,000
PVFA(9%,30)	×10.27365
Assets required at age 65 to fund payments during retirement	$513,683
Using BAII Plus financial calculator:	
30N, 9 I/Y, 50000 PMT, CPT PV ➔ PV = -513,683	

P17-3. ***Suggested solution:***

a.	Expected annual benefits	$30,000
	PVFA(8%,25)	×10.67478
	Assets required at age 65 to fund payments during retirement	$ 320,243
b.	Expected annual benefits earned per year of service	$30,000
	PVFA(6%,25)	×12.78336
	Assets required at age 65 to fund payments during retirement	$ 383,501
	Using BAII Plus financial calculator:	
a.	25N, 8 I/Y, 30000 PMT, CPT PV ➔ PV = -320,243	
b.	25N, 6 I/Y, 30000 PMT, CPT PV ➔ PV = -383,501	

P17-4. ***Suggested solution:***

Expected final year's salary at age 64 = current annual salary	$ 50,000
Pension payment as % of final year salary	× 3%
Pension benefits earned per year of service	$1,500/yr
PVFA(10%,15)	× 7.60608
Assets required at age 65 to fund	$ 11,409
PVF(10%,20) = $1/1.10^{20}$	× 0.14864
Present value of assets required at age 45 = current service cost	$ 1,696
Using BAII Plus financial calculator:	
15N, 10 I/Y, 1500 PMT, CPT PV ➔ PV = -11,409	
20N, 10 I/Y, 11409 FV, CPT PV ➔ PV = -1,696	

P17-5. ***Suggested solution:***

Current annual salary	$ 50,000
Expected increase over next 19 years until age 64 = 1.08^{19}	×4.31570
Expected annual salary in final year of employment at age 64	$215,785
Pension payment as % of final year salary	× 3%
Expected annual benefits earned per year of service	$6,473.55/yr
PVFA(10%,15)	× 7.60608
Assets required at age 65 to fund payments during retirement	$ 49,238
PVF(10%,20) = $1/1.10^{20}$	× 0.14864
Present value of assets required at age 45 = current service cost	$ 7,319
Using BAII Plus financial calculator:	
19N, 8 I/Y, -50000 PV, CPT FV ➔ FV = 215,785	
15N, 10 I/Y, 6473.55 PMT, CPT PV ➔ PV = -49,238	
20N, 10 I/Y, 49238 FV, CPT PV ➔ PV = -7,319	

P17-6. ***Suggested solution:***

Dr. Pension expense ($1,800,000 × 2)	3,600,000	
Cr. Pension contribution payable		600,000
Cr. Cash (given)		3,000,000

P17-7. ***Suggested solution:***

Dr. Inventories ($60,000,000 × 15% × 80%)	7,200,000	
Dr. Administrative expense ($60,000,000 × 15% × 20%)	1,800,000	
Cr. Pension contribution payable		2,000,000
Cr. Cash (given)		7,000,000

P17-8. ***Suggested solution:***

Dr. Pension expense (given)	350,000	
Cr. Defined benefit pension liability (given)		20,000
Cr. Cash		**330,000**

P17-9. ***Suggested solution:***

The summary journal entry recorded for the pension plan for the year was:

Dr. Pension expense (given)	3,600,000	
Dr. Defined benefit pension liability	200,000	
Cr. Cash (given)		3,800,000

Therefore, the defined benefit pension liability account is as follows:

Defined benefit pension liability, beginning of year (given)	$600,000 cr
Adjustment to defined benefit pension liability (see journal entry)	200,000 dr
Defined benefit pension liability prior to fair value remeasurements	**$400,000** cr

P17-10. ***Suggested solution:***

Current service cost	$2,200,000
Interest on obligation	9,500,000
Expected income on assets	(8,700,000)
Pension expense	$3,000,000

Note that it is the expected income rather than the actual income on the plan assets that factors into the pension expense.

P17-11. ***Suggested solution:***

Current service cost	$ 6,800,000
+/– Past service cost	300,000
+ Interest on obligation ($4,800,000 – $200,000)	4,600,000
– Expected income on assets ($5,500,000 – $500,000)	(5,000,000)
Pension expense	**$6,700,000**

Note that it is the expected income rather than the actual income on the plan assets that factors into the pension expense.

P17-12. ***Suggested solution:***

Plan assets, beginning of year	$45,600,000
Plan obligations, beginning of year	(57,500,000)
Net assets (liabilities), beginning of year	(11,900,000)
Increase in net assets from cash contribution	5,000,000
Decrease in net assets from pension expenses	(3,200,000)
Expected value of net assets (liabilities), end of year	(10,100,000)
Fair value of plan assets, end of year	$49,400,000
Present value of plan obligations, end of year	(59,000,000)
Net assets (liabilities) at fair value, end of year	(9,600,000)
Net assets (liabilities) at fair value, end of year	(9,600,000)
Less: Expected value of net assets (liabilities), end of year	(10,100,000)
OCI: gain (loss) on fair value remeasurement	**$ 500,000**

P17-13. ***Suggested solution:***

$000's	2011	2012	2013
Net pension surplus (deficit), beginning of year	4,000	7,000	6,000
Increase in net assets from cash contribution	4,000	4,000	4,000
Decrease in net assets from pension expenses	(3,000)	(4,000)	(5,000)
Expected value of net assets (liabilities), end of year	5,000	7,000	5,000
Net pension surplus (deficit), end of year	7,000	6,000	(15,000)
Less: Expected value of net assets (liab), end of year	5,000	7,000	5,000
OCI: gain (loss) on fair value remeasurement	2,000	(1,000)	(20,000)

P17-14. ***Suggested solution:***

Journal entries

Dr. Defined benefit pension asset or liability	400,000	
Cr. Cash		400,000
Dr. Pension expense – current service cost	225,000	
Dr. Pension expense – interest on obligation	240,000	
Cr. Pension expense – expected income on assets		168,000
Cr. Defined benefit pension asset or liability		297,000
Dr. OCI – Unexpected loss on plan assets	218,000	
Dr. Defined benefit pension asset or liability	243,000	
Cr. OCI – Actuarial gain on plan obligations		461,000

P17-15. ***Suggested solution:***

Journal entries

Dr. Defined benefit pension asset or liability	325,000	
Cr. Cash		325,000
Dr. Pension expense – current service cost	330,000	
Dr. Pension expense – past service cost	800,000	
Dr. Pension expense – interest on oblig. ($2,400,000 × 5%)	120,000	
Cr. Pension expense – expected income on assets		72,000
Cr. Defined benefit pension asset or liability		1,178,000
Dr. OCI – Unexpected loss on plan assets	2,000	
Dr. Defined benefit pension asset or liability	13,000	
Cr. OCI – Actuarial gain on plan obligations		15,000

P17-16. ***Suggested solution:***

Journal entries

Dr. Pension expense – current service cost	570,000	
Cr. Pension expense – past service cost		500,000
Dr. Pension expense – interest on oblig. ($8,000,000 × 5%)	400,000	
Cr. Pension expense – expected income on assets		408,000
Cr. Defined benefit pension asset or liability		62,000
Dr. OCI – Actuarial loss	15,000	
Dr. OCI – Unexpected loss on plan assets	13,000	
Cr. Defined benefit pension asset or liability		28,000

P17-17. ***Suggested solution:***

a. Computation of pension expense

Current service cost (given)	$ 5,400,000
+ Interest on obligation (given)	7,600,000
– Expected return on assets ($8,000,000 + $400,000)	(8,400,000)
Pension expense	**$4,600,000**

b. Journal entries:

Dr. Pension expense – current service cost	5,400,000	
Dr. Pension expense – past service cost	--	
Dr. Pension expense – interest on obligation	7,600,000	
Cr. Pension expense – expected income on assets		8,400,000
Cr. Defined benefit pension asset or liability		4,600,000
Dr. OCI – Unexpected loss on plan assets	400,000	
Cr. Defined benefit pension asset or liability		400,000

P17-18. ***Suggested solution:***

	2011	2012
Current service cost (given)	$500,000	$580,000
+ Interest on obligation (given)	22,000	64,000
– Expected return on assets (given)	(40,000)	(81,000)
Pension expense	**$482,000**	**$563,000**
OCI –unexpected gains and losses on assets	Loss $64,000	Loss $44,000
OCI – actuarial gains and losses on obligations	Gain 2,000	Loss 6,000
Total OCI	**Loss $62,000**	**Loss $50,000**

P17-19. ***Suggested solution:***

	Change in assumption	Effect on pension expense (increase, decrease, or no effect)
a.	Increase expected return on assets	Decrease
b.	Increase life expectancy	Increase
c.	Increase interest rate on pension obligations	Increase*
d.	Increase age of retirement when employees become eligible for retirement benefits	Decrease

*The effect is likely an increase in the pension expense, but may not always be the case. The interest on the obligation increases, but (partially) offset by a decrease in the current service cost.

P17-20. ***Suggested solution:***

	Change in assumption	Defined benefit pension asset
a.	Increase expected return on assets	No effect
b.	Increase interest rate on pension obligations	No effect
c.	Increase life expectancy of employees/retirees	Decrease
d	Increase age of retirement when employees become eligible for retirement benefits	Increase
e.	Increase rate of wage increase when pension benefits are specified relative to employees wages	Decrease

P17-21. ***Suggested solution:***

a. Current service cost and actuarial obligations

Interest rate	8%	10%	12%
PV factor for single sum, 5 years = $1/(1 + r)^5$	0.68058	0.62092	0..56743
Future value of current services	$100,000	$100,000	$100,000
× PV factor	0.68058	0.62092	0.56743
= Current service cost (CSC)	**$ 68,058**	**$ 62,092**	**$ 56,743**
Future value of actuarial obligation, Dec. 31, 2014	$1,500,000	$1,500,000	$1,500,000
× PV factor	0.68058	0.62092	0.56743
= Accrued benefit obligation (ABO), December 31, 2014	**$1,020,870**	**$ 931,380**	**$ 851,145**
Using a BAII Plus financial calculator CSC: 5N, [8 or 10 or 12] I/Y, 100000 FV, CPT PV ➔ PV =	**$ 68,058**	**$ 62,092**	**$ 56,743**
ABO: 5N, [8 or 10 or 12] I/Y, 1500000 FV, CPT PV ➔ PV =	**$1,020,875**	**$931,382**	**$851,140**

b. Pension expense

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Expected return assumption	8%	8%	10%	10%	12%	12%
Discount rate assumption	8%	10%	8%	10%	12%	8%
Current service cost (see a)	$68,058	$62,092	$68,058	$62,092	$56,743	$68,058
Interest on obligation of $790,264	63,221	79,026	63,221	79,026	94,832	63,221
Expected return on assets of $800,000	–64,000	–64,000	–80,000	–80,000	–96,000	–96,000
Total pension expense	**67,279**	**77,118**	**51,279**	**61,118**	**55,575**	**35,279**

c. The assumptions for the expected return on assets and the discount rate on pension obligations are both important. Increases in the return on assets decrease the pension expense (e.g., Case 1 vs. Case 3), while increases in the discount rate have the opposite effect of increasing the pension expense (e.g., Case 1 vs. Case 2). When both rates increase by the same amount, the pension expense declines (Cases 1, 4, and 5) because the current service cost declines; the interest cost and expected return almost offset because plan assets and obligations are at about the same level.

d. IAS 19 requires the use of the same rate for discounting and for return on assets to reduce the amount of earnings management. As demonstrated above, changing the rate applied to the obligations independently of the assets can increase or decrease income significantly.

e. When the discount rate increases, the accrued pension obligation decreases. The present value of a payment in the future becomes less when the discount rate is higher. Figures in part (a) show that the accrued benefit obligation declines from $1,020,870 to $851,145 when the discount rate increases from 8% to 12%.

P17-22. ***Suggested solution:***

Non-current assets	
Defined benefit asset	$ 600,000
Non-current liabilities	
Defined benefit liability	$700,000

Notice that the plans (Production, Service) that have liability balances can be added together, but asset and liability balances cannot be offset against each other.

P17-23. ***Suggested solution:***

Pension assets schedule	
Opening balance	$4,900,000
Contributions	660,000
Benefit payments	(590,000)
Expected income on plan assets	420,000
Unexpected gain (loss)	60,000
Closing balance	$5,450,000

Pension obligations schedule	
Opening balance	$5,500,000
Benefit payments	(590,000)
Current service cost	850,000
Interest on obligations	580,000
Actuarial (gain) loss	900,000
Closing balance	$7,240,000

P17-24. ***Suggested solution:***

Pension assets schedule	
Opening balance (plug)	$15,400,000
Contributions	7,500,000
Benefit payments	(3,450,000)
Expected income on plan assets ($3,350,000 - $1,500,000)	1,850,000
Unexpected gain (loss)	1,500,000
Closing balance	$22,800,000

Pension obligations schedule	
Opening balance (plug)	$19,850,000
Benefit payments	(3,450,000)
Current service cost	2,800,000
Interest on obligations	1,700,000
Actuarial (gain) loss	1,250,000
Closing balance	$22,150,000

P17-25. ***Suggested solution:***

Pension assets schedule	
Opening balance (plug)	$64,200,000
Contributions	--
Benefit payments	(1,150,000)
Expected income on plan assets ($9,450,000 - $3,450,000)	6,000,000
Unexpected gain (loss)	3,450,000
Closing balance	$72,500,000
Amount unrecognized due to asset ceiling*	(9,200,000)
Amount included in net pension asset	$63,300,000

*Closing assets – closing obligations = $72,500,000 - $38,300,000 = $34,200,000.
Amount unrecognized = actual net assets – net assets recognized
= $34,200,000 - $25,000,000 = $9,200,000.

Pension obligations schedule	
Opening balance (plug)	$35,850,000
Benefit payments	(1,150,000)
Current service cost	2,400,000
Interest on obligations	2,700,000
Actuarial (gain) loss	(1,500,000)
Closing balance	$38,300,000

P17-26. ***Suggested solution:***

a. Pension trustee and pension actuary reports

Pension assets schedule	
Opening assets, January 1	$2,100,000
+ Funding (occurs at end of year) (15% × 2,500,000)	375,000
+ Expected return on assets (10% × $2,100,000)	210,000
– Payments to retirees (paid on December 31)	(40,000)
+ Unexpected gain (loss) on plan assets	(221,000)
Actual market value, December 31	$2,424,000

Pension obligations schedule	
Opening accrued benefit obligation, January 1	$3,000,000
+ Current service cost (accrued at end of year)	125,000
+ Interest (accrued on December 31) (10% × $3,000,000)	300,000
– Payments to retirees (paid on December 31)	(40,000)
+ Actuarial (gain) loss	(421,000)
Actual obligation, December 31	$2,964,000

b. Pension expense

Pension expense	
Current service cost	$ 125,000
+ Interest on obligation	300,000
– Expected return on assets	(210,000)
Pension expense	$215,000

c. Journal entry

Dr. Defined benefit pension liability	375,000	
Cr. Cash		375,000
Dr. Pension expense – current service cost	125,000	
Dr. Pension expense – interest on obligation	300,000	
Cr. Pension expense – expected income on assets		210,000
Cr. Defined benefit pension liability		215,000
Dr. OCI – unexpected gains and losses on plan assets	221,000	
Cr. OCI – actuarial gains and losses		421,000
Dr. Defined benefit pension liability	200,000	

P17-27. ***Suggested solution:***

a. Pension trustee and pension actuary reports

Pension assets schedule	
Opening assets, January 1	$1,750,000
+ Funding (occurs mid-year)	150,000
– Payments to retirees (paid mid-year)	(50,000)
+ Expected return on assets (8% × $1,750,000 + 4% × ($150,000 –$ 50,000))	144,000
Unexpected gain (loss) on plan assets	81,000
Closing balance, December 31	$2,075,000

Pension obligations schedule	
Opening accrued benefit obligation, January 1	$2,500,000
+ Current service cost (accrued mid-year)	125,000
– Payments to retirees (paid mid-year)	(50,000)
+ Interest (8% × $2,500,000 + 4%×($125,000 – $50,000))	203,000
Actuarial (gain) loss	72,000
Closing balance, December 31	$2,850,000

b. Pension expense

Pension expense	
Current service cost	$125,000
+ Interest on obligation	203,000
– Expected return on assets	(144,000)
Pension expense	$184,000

c. Journal entry

Dr.Defined benefit pension liability	150,000	
Cr. Cash		150,000
Dr. Pension expense – current service cost	125,000	
Dr. Pension expense – interest cost	203,000	
Cr. Pension expense – expected return on assets		144,000
Cr. Defined benefit pension liability		184,000
Dr. OCI – actuarial gains and losses	72,000	
Cr. OCI – unexpected gains and losses		81,000
Dr. Defined benefit pension liability	9,000	

P17-28. ***Suggested solution:***

a. Schedules for note disclosures

Pension assets schedule	
Opening assets, September 1	$29,000,000
+ Contributions (occurs mid-year)	1,800,000
– Payments to retirees (paid evenly through year)	(900,000)
+ Expected return on assets (8% × $29,000,000 + 4% × ($1,800,000 – $900,000))	2,356,000
+ Unexpected gain (loss) on assets	744,000
Closing balance	$33,000,000

Pension obligations schedule	
Opening accrued benefit obligation, September 1	$25,800,000
+ Current service cost (accrued mid-year)	2,700,000
– Payments to retirees (paid mid-year)	(900,000)
+ Interest (8% × $25,800,000 + 4%×($2,700,000 – $900,000))	2,136,000
Actuarial (gain) loss	(2,236,000)
Closing balance	$27,500,000

b. Pension expense

Pension expense	
Current service cost	$2,700,000
+ Interest on obligation	2,136,000
– Expected return on assets	(2,356,000)
Pension expense	$2,480,000

c. Journal entry

Dr. Defined benefit pension asset	1,800,000	
Cr. Cash		1,800,000
Dr. Pension expense – current service cost	2,700,000	
Dr. Pension expense – interest cost	2,136,000	
Cr. Pension expense – expected return on assets		2,356,000
Cr. Defined benefit pension asset		2,480,000
Dr. Defined benefit pension asset	2,980,000	
Cr. OCI – unexpected gain on assets		744,000
Cr. OCI – actuarial gain		2,236,000

P17-29. ***Suggested solution:***

a. Note disclosure schedules:

Pension assets schedule	
Opening assets, January 1	$5,400,000
+ Funding (beginning of year)	250,000
– Payments to retirees	0
+ Expected return on assets (9% × ($5,400,000 + $250,000))	508,500
+ Unexpected gain (loss) on plan assets	441,500
Closing balance	$6,600,000

Pension obligations schedule	
Opening accrued benefit obligation, January 1	$7,200,000
+ Plan amendment, January 1, 2011	750,000
+ Current service cost (accrued beginning of year)	240,000
– Payments to retirees	0
+ Interest (9% ×($7,200,000 + $750,000 + $240,000))	737,100
+ Actuarial (gain) loss	(427,100)
Closing balance	$8,500,000

b. Pension expense

Pension expense	
Current service cost	$240,000
Past service cost	750,000
+ Interest on obligation	737,100
– Expected return on assets	(508,500)
Pension expense	$1,218,600

c. Journal entries

Dr. Defined benefit pension liability	250,000	
Cr. Cash		250,000
Dr. Pension expense – current service cost	240,000	
Dr. Pension expense – past service cost	750,000	
Dr. Pension expense – interest cost	737,100	
Cr. Pension expense – expected return on assets		508,500
Cr. Defined benefit pension liability		1,218,600
Dr. Defined benefit pension liability	868,600	
Cr. OCI – actuarial gain		427,100
Cr. OCI – unexpected gain on plan assets		441,500

P17-30. ***Suggested solution:***

a. Balance of net defined benefit pension asset liability equals the pension surplus or deficit.

	Dr (Cr)
Pension assets, January 1, 2011	$420,000
Pension obligations, January 1, 2011	(600,000)
Pension surplus (deficit) = net defined benefit asset (liability)	$(180,000)

b. Schedules for pension assets and liabilities

Pension assets schedule	2011	2012
Opening assets, January 1	$420,000	$591,250
+ Funding (at year-end)	100,000	115,000
– Payments to retirees (paid evenly through year)	(15,000)	(20,000)
+ Expected return on assets		
2011: (10% × $420,000 – 5% × $15,000)	41,250	58,125
2012: (10% × $591,250 – 5% × $20,000)		
+ Unexpected gain (loss) on plan assets	45,000	57,625
Closing balance	$591,250	$802,000

Pension obligations schedule	2011	2012
Opening accrued benefit obligation, January 1	$600,000	724,500
+ Current service cost (accrued evenly during year)	75,000	80,000
– Payments to retirees (paid evenly through year)	(15,000)	(20,000)
+ Interest		
2011: (10% × $600,000 + 5%×($75,000 – $15,000))	63,000	75,450
2012: (10% × $724,500 + 5%×($80,000 – $20,000))		
Actuarial (gain) loss	1,500	5,050
Closing balance	$724,500	$865,000

c. Pension expense

Pension expense	2011	2012
Current service cost	$ 75,000	80,000
+ Interest on obligation	63,000	75,450
– Expected return on assets	(41,250)	(58,125)
Pension expense	$96,750	97,325

d. Journal entries

2011	Dr. Defined benefit pension liability	100,000	
	Cr. Cash		100,000
	Dr. Pension expense – current service cost	75,000	
	Dr. Pension expense – interest cost	63,000	
	Cr. Pension expense – expected income on assets		41,250
	Cr. Defined benefit pension liability		96,750
	Dr. OCI – actuarial loss	1,500	
	Dr. Defined benefit pension liability	43,500	
	Cr. OCI – unexpected gain on plan assets		45,000
2012	Dr. Defined benefit pension liability	115,000	
	Cr. Cash		115,000
	Dr. Pension expense – current service cost	80,000	
	Dr. Pension expense – interest cost	75,450	
	Cr. Pension expense – expected income on assets		58,125
	Cr. Defined benefit pension liability		97,325
	Dr. OCI – actuarial loss	5,050	
	Dr. Defined benefit pension liability	52,575	
	Cr. OCI – unexpected gain on plan assets		57,625

e. Balance of net defined benefit pension liability

Dr (Cr), at December 31	2011	2012
Pension assets	$591,250	802,000
Pension obligations	(724,500)	(865,000)
Pension surplus (deficit) = net defined benefit asset (liability)	$(133,250)	$ (63,000)

	Net defined benefit liability		
		180,000	Balance, Jan. 1, 2011
Cash contribution	100,000		
		96,750	Pension expense
Fair value remeasurement	43,500		
		133,250	Balance, Dec. 31, 2011
Cash contribution	115,000		
		97,325	Pension expense
Fair value remeasurement	52,575		
		63,000	Balance, Dec. 31, 2012

M. Mini-Cases

Case 1: ESL Teachers Union. ***Suggested solution:***

Report to ESL Teachers Union and Representatives of ESL Schools' Management

The design of a pension plan is an important task that has the potential to affect many individuals for many decades. With this in mind, the following provides my preliminary views on the issues identified.

1. Amount of contribution required
Based on the assumptions you have provided, combined with an interest rate of 6%, I have estimated the contribution rate as follows

Salary at beginning of 30-year career	$ 35,000
Expected increase over next 29 years at 2% per year = 1.02^{29}	×1.77584
Expected annual salary in final year of employment	$62,155
Pension payment as % of final-year salary	× 2%
Expected annual benefits earned per year of service	$1,243/yr
PVFA(6%,20)	× 11.46992
Assets required at age 65 to fund payments during retirement	$ 14,258
PVF(6%,30) = $1/1.06^{30}$	× 0.17411
Present value of assets required at beginning of 30-year career	$ 2,482

These calculations show that approximately $2,500 is required for a teacher earning $35,000 at the beginning of his/her 30-year career, or 7.1% of gross salary.

2. Defined contribution or defined benefit
Whether the pension plan is defined contribution or defined benefit, the calculations and the amount of funds needed to fund the desired benefits are the same. What is different is who bears the risk of any deviations from expectations. For a defined contribution plan, each teacher bears the risk of investment returns being different from the expected return of 6%. A defined benefit plan places that risk on the plan sponsor/employer (the ESL school).

As a practical matter, the ESL schools vary significantly in size, and many are small. It will be difficult for the many small schools to provide defined benefit plans because they do not have the resources to take on the risk entailed in such plans. It may be possible to arrange for several schools to jointly sponsor a defined benefit plan (i.e., participate in a multi-employer plan), but such plans are complex to administer because it will be unclear as to who bears responsibility for the pension benefits.

3. Opt-in or opt-out
Each of your two sides has proposed a different default position for the teachers. If people were all rational, there would be no difference between the two. In practice, however, opting in and opting out do have substantial consequences. Research shows that people will overwhelmingly take the default position given to them and only a minority will choose an alternative on offer. An opt-in clause is likely to result in many teachers not opting in, with the consequence that

many will be insufficiently prepared for retirement. Furthermore, money set aside in a pension plan accumulates tax free; all else equal, teachers should be setting aside retirement funds in a pension plan or something equivalent (such as a registered retirement savings plan). Since the cost for the employer is essentially the same whether an employee takes the compensation as salary or pension contribution, an opt-out clause for the pension plan would be preferable for the teachers in the long term.

Case 2: Tubular Ltd. ***Suggested solution:***

This report presents my analysis and recommendations concerning the purchase by Syntax of Tubular. In my recommendations, I have tried to support a position that minimizes the price that our client, Syntax Limited, would pay for the purchase of Tubular. However, since we are likely to become auditors of Tubular in the future, I have also been careful not to recommend adjustments that would antagonize Tubular's management.

The following are significant issues that I have identified.

Pension plan

The valuation report from the pension actuary dated September 30, 2010 shows a surplus of $97,000. Tubular has recognized the actuarial gain by offsetting the amount against current-year service costs, thus increasing income by $97,000. IFRS requires actuarial gains and losses to be either (i) amortized over the expected average remaining service life (EARSL) of the employee group or (ii) immediately recognized through other comprehensive income (OCI).

It appears that management has misapplied the second approach by immediately recognizing the gain but as an offset to pension expense, not through OCI. Under either of the acceptable approaches retained earnings will decrease by $97,000, which will decrease the purchase price of Tubular, which is consistent with Syntax's objectives.

Tube-bending machine

Tubular purchased a tube-bending machine in 2010 for $200,000 and paid a deposit of $60,000. The vendor went into bankruptcy and no additional liability has been set up. Since the vendor failed to provide service on its warranty, management believes that the liability does not have to be set up.

Even though the vendor is in breach of the contract, a liability does exist because Tubular has kept the machine. There may be an argument for reducing the liability by the service cost of $20,000 that should have been covered by the warranty. I recommend that a liability be set up for the unpaid balance of $140,000 and expensing the $20,000 service cost as a period expense.

At the same time as Tubular recognizes a liability, it should also capitalize the cost of the machine. Assuming that $60,000 has already been recorded, an additional $140,000 should be capitalized. The additional amount would be depreciated over the estimated useful life of the tube-bending machine. (There is currently insufficient information to determine the exact amount of that depreciation.)

Deferred income tax asset

Management has recognized $233,000 for the potential benefits from the significant tax loss incurred in the current year. Management believes this treatment is warranted because it believes

it will probable that the company will be able to realize the benefits of these losses by reducing the amount of CCA claimed in future years.

Management's claim is only partly correct. The balance sheet shows a deferred tax liability of $72,000, which corresponds to $240,000 of CCA in excess of depreciation at a tax rate of 30%. This amount is insufficient to offset all of the losses, which amount to about $777,000 ($233,000 / 30%). Unless Tubular's management has other reasons to support the belief that these tax losses will yield probable future benefits, the amount in excess of $72,000 (i.e., $233,000 – $72,000 = $161,000) should be removed from the balance sheet. Doing so will reduce income by $161,000.

Case 3: Pensions. ***Suggested solution:***

Case 1: There are two issues the client is concerned with as a result of the decline in the stock market: the effect on the net pension obligations, and the effect on net income. With respect to the pension obligation, a decrease in the value of the pension assets will indeed cause an increase in the net pension liability. However, the stock market decline will not necessarily cause the value of the pension assets to decline. Pension trusts do not usually invest only in stocks, but rather invest a vast majority of assets in lower risk investments (bonds and similar financial instruments). Therefore, the effect of the declines in the stock market on the trust's assets might be small. The client should be advised to check directly with the pension trust on the effect of the developments in the stock market on the value of the pension assets. The client's second concern is the effect on net income. Assuming the trust had investments in stocks, and they lost value, a negative effect on the pension assets will result in recognition of actuarial losses. However, actuarial gains and losses under IAS 19 are recognized directly through other comprehensive income, and bypass net income. Thus, the client should be reassured that there will be no effect on net income.

Case 2: Legally the company is only obligated for a future pension payout based on 2% of the employee's last salary. However, the issue at stake is whether there is a constructive obligation to pay based on 2.5%, and whether such an obligation should be accounted for in the calculation of pension liabilities. IAS 19 clearly states that constructive obligations should be included in the calculation of the pension liability. IAS 19 defines a constructive obligation as an informal practice, which gives rise to an obligation where the entity has *no realistic alternative* but to pay employee benefits. The standard gives as an example of a situation where not following the informal practice would cause unacceptable damage to its relationship with employees. On the surface, it seems inevitable that the company will have to increase the pension obligation to 2.5%. The industry seems to follow common practices with regards to pension plans, as evident by the fact that in the past most firms had similar obligation of 2%, and most companies made similar changes to 2.5% in the same year. Also, the fact that the union is asking for a meeting to discuss such changes, further suggests that eventually the company will have to increase its pension obligation. However, some issues should be examined before a final determination is made. For example, it is possible that some concessions have been made by employees in other companies in exchange for the increase in the pension arrangement. Also, if in the past the client company was able to receive concessions from the union in exchange for changes in employee benefit arrangement, then this fact should also be taken into consideration.

