Ralph's Pension Analysis

Ralph recognizes defined-benefit pensions present actuarial and financial disclosure challenges.

A. Ralph's pension benefit.

Ralph is Alice's sole employee. Ralph is paid $100 per hour plus defined pension benefits.
Ralph's pension at retirement is equal to $10 per hour worked for Alice. Ralph is currently in his
first year of employment with Alice; he is 40 years of age and is expected to retire in 25 years at
age 65. He is expected to work 200 hours per year. However, Ralph may not remain with Alice
until retirement. In particular, the probability that Ralph continues in the employ of Alice next
year given that he is currently employed by Alice is 0.99 and the probability of returning to
Alice's employ if he leaves is zero. Alice's interest rate on debt comparable to its pension
liability is 10 percent.

Suggested:

(i) What is the expected value of Ralph's pension at retirement (where expectations are formed at
time 0)?

[Hint: In determining the value of Ralph's pension it is useful to recall the properties of a
geometric series. For $0 < |x| < 1$, $1/(1-x) = 1 + x + x^2 + x^3 + \dots$. A familiar application is present
value of a perpetuity. Think about taking the difference between two such series (properly
positioned in time) to solve for Ralph's pension value on retirement such as employed in deriving
present value of annuities from present value of perpetuities.]

(ii) What is the present value of Alice's expected pension obligation?

(iii) To connect with disclosures, think about accruing the pension obligation as services are
provided by Ralph. That is, start with zero pension obligation at time 0 and add the present value
of each year's 'earned' deferred (pension) compensation as Ralph provides services as of the end
of each year. This schedule should include principal at the beginning and end of each year,
interest on the beginning principal, and the present value of the current year's deferred
compensation or normal service cost.

[Hint: Normal service cost plus interest each year should produce a pension obligation that grows to $2,000/year times 25 years = $50,000 at the end of 25 years.]

(iv) Contrast the accounting in (iii) with (standard) economic valuation.

B. Ralph's pension disclosures.

Ralph is considering alternative employment and is concerned about the soundness of the organization's pension plan so he decides to analyze their pension disclosures. The organization currently provides no postretirement health care benefits. Attached are financial statement disclosures regarding the prospective employer's pension plan.

Suggested:

Set-up T accounts and a directed graph for all relevant accounts.[1] Use the T accounts and directed graph to reconcile ending and beginning balances for all accounts.

1.   Analyze resource flows related to the organization's pension plan. That is, determine the amount of distributions to retirees and the amount of contributions the organization made to its pension fund during year 12 and year 13.

2.   Determine the amount of appreciation on assets in place during year 12 and year 13. Is this the amount recognized in gains or losses? Why?

3.   Deferred amounts are reported in comprehensive income. What adjustments to comprehensive income are reported during year 12 and year 13?

4.   What, if anything, has happened with respect to 'prior service cost' and 'transition obligations'?

5.   Are the organization's assumed rates of return on assets and rate of interest on the obligation reasonable? Why? Are other actuarial assumptions reasonable? Why?

---

[1] During 2006, the FASB revised reporting guidelines for pensions and other post-retirement benefits (such as health care). In brief, balance sheet recognition of a firm's net obligation replaces footnote-only disclosure and eliminates minimum pension liability and related accounts. Where appropriate, the prospective employer has restated prior results to conform with FAS statement 158.

Prospective Employer's Postretirement Benefit Plans

	Year 13	Year 12
Service cost	$ 16.000	$ 13.000
Interest	26.500	21.270
(Return)	(22.000)	(12.000)
Unexpected gain/(loss)	6.040	(1.410)
Amort. of prior service cost	17.600	20.800
Amort. of unrecog. (gain)/loss	0.172	-
Net pension cost	$ 44.312	$ 41.660

	End of year 13	End of year 12	End of year 11
Projected obligation	$ 289.500	$ 265.000	$ 212.700
Plan assets	190.600	159.600	134.100
Prepaid/(accrued) pension cost	$ (98.900)	$(105.400)	$ (78.600)
Comprehensive income adjustments:			
Unrecognized (gain)/loss	23.728	29.940	0.000
Unrecog. prior service cost	14.400	32.000	52.800
Unamort. trans. oblig./(asset)	0.000	0.000	0.000