

**Defined Benefit Plans  
Accounting, and Funding**

**Financial Economics  
Vs.  
Pension Tradition**

*By*  
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Any errors are the sole responsibility of the author.

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# **Defined Benefit Plans Accounting, and Funding Financial Economics Vs. Pension Tradition**

## **I. Introduction**

In recent years, pension plan practitioners have become increasingly aware of the teachings of financial economics and their potential impact on pension plan valuations, accounting, and funding. However, many practitioners are still unaware of these teachings. Many others are aware, but remain unconvinced that plan sponsors, pension actuaries, and those individuals responsible for setting rules should follow these teachings.

This outline attempts to compare the approach of financial economics with the more traditional approach of pension practitioners. It discusses the merits of each and the implications of a possible change in traditional thinking.

## **II. Financial Economics Vs. Pension Tradition**

### **A. The Teachings of Financial Economics (FIN ECON).**

- 1. For purposes of financial analysis, treat the funded plan as two separate elements.**
  - a) One is a liability of the sponsor that reflects accrued benefits.
  - b) The other is an asset of the sponsor that reflects pension fund assets.
- 2. Value plan assets for all purposes at fair value.**
  - a) For marketable securities, this means market value.
- 3. Value accrued benefits for accounting purposes using market rates for comparable loans.**
  - a) Participants have earned their accrued benefits and “loaned” their value to the sponsor.
- 4. Value accrued benefits for funding purposes using risk-free rates.**
- 5. Avoid all smoothing and amortization of pension cost items.**
- 6. In financial statements, divorce the pension cost of operations (the charge against current operating earnings) from other items.**
- 7. In financial statements, look through the sponsoring entity and focus on current individual investors.**
  - a) The picture for today’s investors must reflect today’s reality.

- (1) It is not enough that the picture for yesterday's investors was realistic or that the picture for tomorrow's investors will be realistic.

## **B. The Conventional Wisdom of Pension Tradition (TRADITIONAL).**

- 1. View the funded plan as a single item.**
- 2. Value plan assets using smoothing techniques.**
  - a) For financial statement purposes, project assets to the end of the period using expected return.
- 3. Value accrued benefits for accounting purposes using an interest rate curve based on high-quality bonds.**
- 4. Value accrued benefits for funding purposes using a rate based on expected return.**
- 5. Amortize "non-recurring" items to produce smoothed costs.**
- 6. Make no distinction between costs attributable to current operations and other costs.**
- 7. In financial statements, focus primarily on the long-term impact on the sponsoring entity.**

## **III. Analyzing and Comparing the Approaches**

### **A. The Funded Pension Plan: One Element Vs. Two.**

- 1. The FIN ECON view.**
  - a) Economically (although not legally):
    - (1) Pension funds are assets of the sponsor.
    - (2) Accrued pension benefits are sponsor debt.
    - (3) Each should be treated individually.
- 2. Advantages of this view.**
  - a) It leads to a more rational calculation of costs, liabilities and assets.
  - b) This aids a more rational analysis by stakeholders (investors, lenders, participants, and taxpayers).
    - (1) The pension fund is like any other fund the sponsor has accumulated and pledged to meet specified obligations.
    - (2) The accrued benefit obligation is like any other debt.
  - c) The view increases the incentive to fund adequately.
    - (1) Sponsors are concerned about views of investors and creditors.

- (2) Consider the sponsor who borrows to make more than the minimum pension contribution.
  - (a) The resulting increase in assets will exceed the increased debt from borrowing.
    - (i) The operative word is *exceed*, not *equal*, because the pension contribution is tax deductible – thus decreasing tax expenditures and increasing assets.
  - (b) Analysts generally accept the proposition that (ignoring taxes and the likelihood of bankruptcy) a firm’s value is unaffected by debt/equity ratios on its balance sheet.
  - (c) This incentive is enhanced by tax treatment.
    - (i) Interest on the borrowing is deductible.
    - (ii) Investment return on plan assets is tax-exempt.

### **3. The TRADITIONAL view.**

- a) For valuation purposes, a funded pension plan is a single integrated element.

### **4. The current state of the art.**

- a) Funding valuations treat the plan as a single integrated element.
- b) Financial statement valuations make separate calculations for assets and liabilities, but combine results for reporting.

## **B. Valuing Plan Assets: Market Value Vs. “Actuarial” Value.**

### **1. The FIN ECON view.**

- a) Plan assets should be valued for all purposes at “fair value.”
- b) For marketable securities, this means market value.
- c) There should be no distinction between realized investment income and changes in market value.

### **2. Advantages of the FIN ECON view – Meeting investor needs.**

- a) Consider an analogy to a mutual fund.
  - (1) Investors would not tolerate an “actuarial value” of their investment that differs from the value at which they could sell.
- b) Consider an analogy to a corporate equipment replacement fund.
  - (1) Investors and creditors would not tolerate a value that does not accurately represent the fund’s current purchasing power.

### **3. Advantages of the FIN ECON view – Meeting participant and societal needs:**

- (1) For participants and society, the primary purpose of plan assets is to secure payment of benefits.

- (a) For this purpose, all that counts is fair value.
  - (i) You cannot pay off participants using “actuarial dollars.”
  - (ii) You cannot buy a commercial annuity with actuarial values that exceed market values.

#### **4. The TRADITIONAL view.**

- a) The asset valuation method should dampen fluctuations in market value.
  - (1) Methodology should be centered on market value.
  - (2) However, an actuarial value that temporarily differs from market value (because of market value fluctuations) is acceptable.

#### **5. The rationale underlying the TRADITIONAL view.**

- a) If, for example, valuation is done on January 1, market values on that date are no more “correct” than market values on, say, the prior December 15 or the following January 15.
- b) Pension funding is a long-term proposition; therefore short-term deviations from market value are unimportant.
  - (1) Over time, market values will probably “revert to the mean.”

#### **6. Advantages of the TRADITIONAL view.**

- a) The asset valuation method will help smooth costs.
  - (1) This will help avoid unexpected “spikes” in contribution requirements.
  - (2) It will avoid upsetting unversed investors reviewing financial statements.

### **C. Valuing Accrued Benefits for Accounting – The Interest Rate.**

#### **1. The FIN ECON view.**

- a) Since accrued benefits are an obligation of the sponsor, the interest rate should be the rate that would apply to a bond with similar characteristics – a “reference security.”
  - (1) Characteristics to consider:
    - (a) Duration: Ordinarily, the interest rate on a loan of long duration would be higher than the rate on one of short duration.
    - (b) Default Risk: A sponsor with a high credit rating would enjoy a lower rate than a sponsor with a lower rating.
    - (c) Security: The existence of plan assets will depress the rate – but not below a rate based on a portfolio of high-quality bonds.
    - (d) Guarantees: In the eyes of some, the existence of PBGC guarantees will depress the rate.
      - (i) Most observers would treat PBGC guarantees as irrelevant.
        - (a) They are separate and constitute a contingent PBGC debt.

(2) An interest rate curve should be individually determined for each sponsor.

## **2. The TRADITIONAL view.**

- a) The rate should be selected from an interest rate curve based on high-quality bonds.

## **D. Valuing Accrued Benefits for Funding – The Interest Rate**

### **1. The FIN ECON view.**

- a) Funding should be based on risk-free rates.
  - (1) The reference to “risk-free” reflects an important distinction in terms.
    - (a) “*Risk-adjusted*” refers to a rate where the underlying security is immune from market value fluctuations but not from default.
    - (b) “*Risk-free*” refers to a rate where the underlying security is immune from all risks.
  - (2) A portfolio of high-quality bonds cash matched to pension disbursement obligations is usually deemed to be as nearly risk-free as possible – without resorting to Treasury securities.
  - (3) Duration would be the principal factor distinguishing one sponsor’s pension debt from another’s.
- b) An important part of this view is that the rate used should not depend on risk taking of the type involving the use of common stocks or high-yield bonds.
- c) A single interest rate curve would apply at any point in time to all plans.

### **2. The TRADITIONAL view.**

- a) The selected interest rate should be based on the expected return of plan assets.
  - (1) To the extent expected rates reflect a premium for aggressive risk taking, the selected rate should reflect this premium.
- b) Short-term fluctuations need not be considered in a pension fund invested for the long term.

### **3. The FIN ECON rationale.**

- a) Lenders demand loan interest based on risk-free rates, with additional interest to cover any risk of fluctuation or default.
  - (1) Example:
    - (a) A borrower with a high credit rating incurs a \$1,000,000 debt today.
    - (b) The debt is to be extinguished 10 years from today with a balloon payment of principal plus interest at 5%.
      - (i) The necessary payment in 10 years will be \$1,628,895.



- (c) The borrower plans to fund the payment with a portfolio of common stocks expected to return 8½%.
- (i) Based on 8½% interest, the present value of the \$1,628,895 balloon payment is \$720,436.
- (d) Neither borrower nor lender would expect the lender to accept \$720,436 today to extinguish the debt.
- (e) Both would agree that the \$279,564 difference between \$1,000,000 and \$720,436 is the value of the premium the borrower expects to receive (if actual results equal borrower's expectations) for taking the risk of investing in common stocks.
- (f) If the borrower convinced the lender to assume this common stock risk, the lender would require an interest rate greater than 5% and the necessary expected payoff would exceed \$1,628,895.
- b) Economically, unpaid accrued pension benefit obligations are loans from participants to the sponsor and should be treated as such.

**4. Advantage of the FIN ECON view to participants and society.**

- a) The use of risk-free rates will lead to values consistent with commercial annuity prices.
- (1) This improves the likelihood that assets, upon plan termination, will be adequate to guarantee payment of earned benefits.

**E. Smoothing.**

**1. The FIN ECON view.**

- a) Any change in current cost, balance sheet status, or funding requirements should be fully reflected as soon as it becomes evident.

**2. The TRADITIONAL view.**

- a) "Non-recurring" changes should be subject to amortization.

**3. Advantage of the FIN ECON view.**

- a) It more clearly shows current investors their current status.
- b) It more clearly shows participants and society the extent to which plan benefits are secured.
- c) It increases the likelihood that funding will be adequate upon plan termination.

**4. Advantage of the TRADITIONAL view.**

- a) It avoids volatile changes in costs, liabilities, assets, and contribution requirements.
- (1) As an aside, avoidance of volatile change appears to be of greatest importance to those sponsors most at risk of defaulting on their pension obligations.

## **5. The current state of the art.**

- a) Smoothing through the valuation method applies to valuation of assets.
- b) Smoothing through amortization applies to:
  - (1) Actuarial gains and losses.
  - (2) The effect of changed assumptions.
  - (3) Past service cost resulting from plan adoption or amendment.
  - (4) Similar non-recurring items.

## **F. Separating Operating Costs from Other Financial Items.**

### **1. The FIN ECON view.**

- a) Investors are concerned over two separate items:
  - (1) Net earnings from current operations (especially when measuring a firm's value as a multiple of current earnings – applying a “P/E” ratio).
  - (2) The current balance sheet.
- b) The pension cost chargeable to operating results for a period is the value of benefits accrued during that period.
  - (1) This is, generally, the additional ABO (not PBO) attributable to the period.
- c) Items not treatable as charges against current operating results include:
  - (1) Interest on benefits accrued in prior periods.
  - (2) Investment return on plan assets.
  - (3) Actuarial adjustments due to:
    - (a) Changed assumptions.
    - (b) Realized demographic gains and losses.
- d) The items referenced in (c) above should be reflected on the balance sheet, but not in the current statement of earnings from operations.
  - (1) However, even on the balance sheet, the appropriate number is the ABO, not the PBO.

### **2. The TRADITIONAL view.**

- a) Items the FIN ECON would exclude from charges to current operations should all be charged against current operations.
  - (1) Interest on benefits accrued in prior periods should be fully reflected.
  - (2) Expected return on assets should be fully reflected.
  - (3) The other items should be reflected, in general, through amortization charges and credits.

### **3. Why FIN ECON prefers to exclude certain items from reflection in current operating results.**

- a) A failure to exclude these items can lead to irrational investor decisions regarding the firm's value.
  - (1) Following is an example of failure to exclude two critical items, namely investment return on pension assets and growth in pension obligations due to interest:
    - (a) The pension liability at the beginning of the period is \$8,000,000 and pension assets equal \$9,000,000.
      - (i) The pension liability accurately reflects commercial closeout annuity prices.
    - (b) To keep the example simple, there are no pension contributions and no benefit accruals during the period.
    - (c) The interest increase in pension liability for the period at 5% is \$400,000, giving an ending balance of \$8,400,000.
    - (d) The actual return on assets is 5%, or \$450,000, giving an ending balance of \$9,450,000.
    - (e) Failure to exclude these items increases earnings by \$450,000 minus \$400,000, or \$50,000.
    - (f) The market places a value on firms of this nature using a multiplier of 25 times earnings.
    - (g) Failure to exclude these items increases the apparent market value of the firm by 25 times \$50,000, or \$1,250,000.
    - (h) If accrued benefits were settled by purchase of a closeout annuity, remaining assets would equal \$9,450,000 minus \$8,400,000, or \$1,050,000.
    - (i) A net pension asset of \$1,050,000 would increase the apparent value of the firm by \$1,250,000 – a palpably irrational result.
  - (2) A more rational approach would be to calculate the value of the firm:
    - (a) By applying the 25 times multiplier to operating results excluding the critical pension items, and
    - (b) Adding to this product the net pension-related balance sheet item totaling \$1,050,000.

#### **4. Why FIN ECON prefers the ABO to the PBO.**

- a) If benefits are pay-related, the PBO is, in general, the accrued benefit adjusted for the expected impact of future pay increases.
- b) Generally, the only legal obligation of the plan involves benefits already accrued, without adjustment for possible future pay increases.
- c) Consider an analogy: The charge for current compensation.

- (1) Generally, current pay is a current cost chargeable against current operating earnings.
  - (2) No one would suggest that this current charge should reflect the expected impact of future pay increases.
  - (3) The same rule should apply to the cost of current pension accruals and the balance sheet liabilities for all accrued benefits.
  - (4) The impact of pay increases should be reflected in the periods in which they occur.
- d) Carrying the analogy further, neither future increases in direct pay nor future increases in current pension accruals reflect *implied* commitments.
- (1) The only implied commitment is to continue providing the competitive compensation package necessary to obtain and retain a competent workforce.

## 5. Why TRADITIONAL favors the PBO.

- a) As the participant approaches normal retirement age, the increment in ABO can become quite steep. With each passing year, the interest discount attains less significance, causing the year's present value to increase even if pension accruals, measured as benefits, remain constant from period to period.
  - (1) In a final pay plan, the increase can become even steeper, as all prior accruals are recalculated based on revisions to running pay averages.
- b) Thus, to ignore the impact of expected increases in future pay is to risk misleading investors.

## 6. Indirect advantages of the FIN ECON view.

- a) Substitution of the ABO for the PBO as a measurement tool would generally tend to reduce current pension charges as well as liabilities.
  - (1) An exception to this rule applies to current pension charges for sponsors with older, longer-service, participants.
    - (a) In these cases, a change to ABO could *increase* current charges.
    - (b) Even here, the change would generally reduce the balance sheet liability.
  - (2) Reductions, where they occur, will generally be viewed with favor by plan sponsors.
- b) Use of the ABO would drive home the risk any sponsor incurs in maintaining a plan basing benefits on final average pay.
  - (1) The leveraging effect of the final pay formula will produce ABO increases as the participant approaches retirement age that may prove quite alarming to the sponsor.

- (2) Thus, a feature of the PBO/ABO comparison that may appear to favor the TRADITIONAL approach may actually be an indirect advantage of the FIN ECON approach.

## **7. Accrued benefit values vs. plan termination benefit values.**

- a) Ordinarily, the present value of plan termination benefits will exceed the present value of ongoing-plan accrued benefits.
  - (1) Plan termination benefits may include items such as plant shutdown benefits.
  - (2) The appropriate ongoing-plan retirement assumption may differ from a plan termination assumption.
    - (a) This is especially true if plan termination is assumed to be the result of a cessation of business operations.
- b) There is disagreement over whether financial reporting and funding should be based on plan termination benefits or ongoing-plan accrued benefits.
- c) From the standpoint of participants and society as stakeholders, the use of plan termination benefits in funding standards would be preferable.

## **G. Individual Investors Vs. the Sponsoring Entity.**

### **1. The individual investor is (directly or indirectly):**

- a) In private plans: a proprietor, partner, shareholder, or lender.
- b) In public plans: a taxpayer, donor, or lender.

### **2. The FIN ECON view.**

- a) The focal point is the individual investor, not the entity sponsoring the plan.
- b) For any firm, the roster of individual investors is subject to continuous change.
- c) Thus, a sponsor should handle pension items in a way that honestly and accurately informs all investors at all points in time.

### **3. The TRADITIONAL view.**

- a) The focal point is the sponsoring entity.
- b) Pension matters are long-term in nature.
- c) Thus, short-term aberrations can and should be ignored.

### **4. Treatment of differences between actual and expected investment return.**

- a) In the TRADITIONAL view, as already discussed, the assumed rate of return for determining contributions to an aggressively invested pension fund should include a risk premium that reflects the investment policy.
  - (1) If future actual return falls short of expected, it will be appropriate to show an actuarial loss when the shortfall is identified.

- (2) This loss will be borne by the generation of individuals who are investors when the loss is identified.
- b) In the FIN ECON view, the assumed rate of return should be a risk-free rate.
  - (1) If future actual return exceeds this risk-free rate, there will be a gain.
  - (2) This gain will be shared by the generation of individuals who are investors when the gain is identified.
- c) For example, consider a new plan where the TRADITIONAL view is being followed.
  - (1) The risk-free rate is 5%.
  - (2) The expected actual rate is 8½%.
- d) Initial costs reflecting the 8½% rate will be lower than if the assumed rate had been 5%.
- e) This reduced cost will be enjoyed by the roster of investors current at the time of plan inception.
- f) The risk related to this reduced cost will be borne by the roster of investors current at the time any actuarial gain or loss is identified.
- g) This staggered treatment, one generation enjoying lower costs with the following generation taking the risk, will continue indefinitely.
- h) If plan calculation results remained static:
  - (1) The only generation receiving unwarranted favorable treatment without bearing *any* related risk would be the first.
  - (2) The only generation bearing a risk without *any* compensating reward would be the roster of investors at the time of plan termination.
  - (3) Each intervening generation would bear the risk passed to it by the prior generation, with interest.
    - (a) In turn, it would pass on to the next generation, a comparable risk, with additional interest.
- i) However, continuation in a static state would be rare.

## 5. The FIN ECON view and intergenerational misallocation

- a) Under the FIN ECON view, this intergenerational mismatch of risk and reward is inappropriate.
- b) The consequences of mismatch can be especially harmful with public plans where one generation of taxpayers bears the risk whereas the prior generation enjoyed the advantage.
  - (1) In some cases, the public plan mismatch can cause public officials to make unwarranted benefit liberalizations that will prove harmful to future generations of taxpayers.

## **6. Asset valuation – the FIN ECON view.**

- a) The proper allocation of financial experience among different generations of investors is an additional factor militating in favor of fair value.

## **7. The TRADITIONAL view and intergenerational misallocation.**

- a) The TRADITIONAL view is that increased accuracy in intergenerational allocation does not justify the period-to-period volatility that this accuracy creates.

# **IV. About Plan Investments**

## **A. Financial Economics Issues?**

### **1. FIN ECON and plan asset allocation.**

- a) The lessons of FIN ECON do not directly cover investment allocation rules for the pension fund.
- b) However, these lessons provide powerful reasons to invest plan assets in a cash-matched portfolio of investment-grade bonds.

## **B. Avoiding Risk Due to Changes in Market Interest Rates.**

### **1. Cash matching.**

- a) A bond portfolio is cash-matched to pension benefit disbursement obligations if expected cash in-flow from the portfolio will match, in both timing and amount, expected benefit payments under the obligations.
  - (1) Cash in-flows include both coupon interest and proceeds realized upon bond redemption.
- b) If cash flow expectations are realized, a cash matched portfolio completely avoids risk from changes in current market interest rates.
- c) An expression used more commonly than cash matching is “duration matching.”
  - (1) Duration matching is somewhat less constraining than cash matching.
  - (2) However, it provides incomplete insulation from interest rate fluctuations.

### **2. Cash matching with diversified investment-grade bonds.**

- a) Consider a cash-matched diversified portfolio of investment-grade bonds.
  - (1) To the extent instruments are available to cash match disbursement obligations, there is complete protection from the interest rate risk.
  - (2) However, there is not complete protection from the default risk.
    - (a) The residual default risk relates to the existence, in a portfolio of even the highest quality, of a certain number of bonds that will fall victim to default.

- b) The portfolio does offer complete protection from the fluctuation in market values associated with common stocks.
- c) The investment risk of maintaining a funded pension plan is dramatically reduced.

## **C. Tax Treatment.**

### **1. Tax-exempt pension funds vs. taxable portfolios.**

- a) The tax-exempt pension fund is free of taxes on its investment results.
- b) With a taxable portfolio:
  - (1) Capital gains are not taxed until realized.
  - (2) Then, they are taxed at rates lower than those applicable to ordinary income.
    - (a) Under the Jobs and Growth Tax Relief Reconciliation Act of 2003, the maximum capital gains rate is 15% (previously 20%).
  - (3) Under the same 2003 Act, most dividends are taxed at rates that do not exceed 15%.
  - (4) However, unless renewed by Congress, the 2003 Act expires, generally, after 2009.
    - (a) This expiration would affect tax rates on capital gains and dividends, but would not eliminate a distinction between taxation of bond investment results and taxation of equity results.

### **2. FIN ECON emphasis on individual investors.**

- a) As already discussed, the FIN ECON focus is on the individual investor, not the pension plan sponsor.
- b) In this view, it is appropriate to think of the individual equity investor as “owning” a percentage share of the pension trust.
  - (1) The percentage reflects the equity investor’s ownership share of the sponsoring organization.
  - (2) Balancing this, the equity investor can also be deemed to “owe” a percentage share of the sponsor’s pension debt to participants.

### **3. Individual investors’ allocation between the pension fund and the taxable portfolio.**

- a) Suppose an individual’s risk tolerance dictates a particular allocation between stocks and bonds.
  - (1) Because of the tax treatment of the taxable portfolio:
    - (a) It is generally advantageous for investors to:
      - (i) Encourage investment of their “share” of the tax-exempt pension fund in bonds, and



- (ii) Emphasize common stocks in their taxable portfolios.
- (2) Consequently, the sponsor who emphasizes bonds in the pension fund is providing a favorable tax opportunity for the individual investor.
  - (a) Bonds, which receive no special treatment in the taxable portfolio, are emphasized in the tax-exempt pension fund.
  - (b) Common stocks, which do receive favorable treatment in the taxable portfolio, are emphasized in the taxable portfolio.
- (3) This is exactly the same distinction the individual investor faces in considering which securities to hold in an IRA and which to hold in the taxable portfolio.

## **D. Risk Management at the Sponsor Level.**

### **1. The private plan sponsor and its business.**

- a) The sponsoring organization probably has a limit to the amount of risk it is willing to take, on behalf of its investors.
  - (1) This risk might be the sum of the risk of normal business operations plus the risk offered by the pension fund.
- b) If the use of a cash-matched bond portfolio reduces the risk taken in the pension fund, the sponsor may feel able to increase its business risk through more aggressive strategies.
- c) Presumably, the sponsor has unique capabilities respecting its own business.
- d) Increased risk-taking by the sponsor in its own business may be more productive than continued aggressive risk-taking with the pension fund.

## **E. The Costs of Market Value Fluctuation.**

### **1. Characteristics of the equity portfolio.**

- a) Clearly, a characteristic of any equity portfolio is market value fluctuation.
- b) In a pension fund, this fluctuation can hurt the sponsor in either direction.

### **2. Excise taxes.**

- a) A *downward* fluctuation as a business cycle bottoms out can be troublesome.
  - (1) The sponsor must either:
    - (a) Make an increased contribution at a time when its own cash flow may be unattractive, or
    - (b) Pay a 10% underfunding excise tax.
- b) An *upward* fluctuation at a time when the sponsor may need to terminate the plan can be even more troublesome.
  - (1) Here, the sponsor must either:
    - (a) Attempt to “gross-up” benefits to utilize an asset surplus, or

(b) Pay confiscatory taxes.

(i) These include a reversion tax that can be as great as 50%!

(ii) Regular income taxes are in addition to the reversion tax.

### **3. PBGC variable premiums.**

a) A *downward* fluctuation can lead to new or increased variable premium obligations.

b) An *upward* fluctuation may not have an offsetting impact.

(1) Variable premium rules are not symmetrical.

(a) The law does not envision a negative variable premium.

### **4. Pressures on employment costs.**

a) A *downward* fluctuation not immediately offset by additional contributions can adversely affect participant attitudes regarding the value of the plan.

(1) This can make it necessary to provide an increase in some other part of the compensation package (direct pay or other benefits).

b) An *upward* fluctuation can give participants the impression that there is room for “cost-free” benefit improvements.

(1) In collective bargaining situations, this can be problematic.

(2) It can also be problematic with public plans, where officials are tempted make unwarranted and harmful benefit liberalizations.

### **5. Characteristics of the cash-matched bond portfolio.**

a) Use of a cash-matched bond portfolio can minimize the impact of market value fluctuations, thus helping to avoid the consequences of such fluctuations.

## **F. Investor Relations Implications.**

### **1. Bond investment and P/E ratios.**

a) As discussed later, the use of cash-matched bonds will reduce volatility in accounting costs and thus in reported earnings.

b) With more stable earnings, investors will value the sponsor using a higher P/E ratio.

c) Admittedly, some will argue that shifting pension fund investments from equities to cash-matched bonds will increase long-range pension costs.

d) However, the higher P/E ratio is likely to mean an offsetting increase in the firm’s market value.

### **2. The message sent to investors.**

a) Suppose the notion of investing pension funds in bonds is accepted by some sponsors and rejected by others.

- b) Consider two plan sponsors:
  - (1) They maintain plans that are funded to the same extent, and that have the same degree of importance in sponsor financial reports.
  - (2) Sponsor A's pension fund holds, primarily, equity investments in other firms.
    - (a) Sponsor A holds, apart from its pension fund, a significant position in bonds.
  - (3) Sponsor B's fund holds only bonds.
    - (a) Sponsor B holds, apart from its pension fund, a significant position in its own stock.
- c) Treating the pension fund, for economic purposes, as an asset of the sponsor, Sponsor A and Sponsor B will tend to own similar stock/bond asset mixes.
  - (1) The message sent by Sponsor A is that it regards stocks of other companies more favorably than it regards its own stock.
    - (a) This is probably not the message Sponsor A wants to send to investors.
  - (2) The message sent by Sponsor B is that it has confidence in its own stock.

## **V. Avoiding Volatility**

### **A. Current Practice.**

#### **1. Prevalent pension fund asset mix.**

- a) At present, a great many pension funds are making common stock allocations ranging from 60% to 70% of the total fund.

### **B. Controlling Contribution Volatility.**

#### **1. The problem.**

- a) Viewed by itself, adoption of the FIN ECON approach to asset valuation and amortization of "non-recurring" items will tend to increase volatility in minimum contribution requirements.
  - (1) The problem of volatility is compounded by a significant element of unpredictability.
    - (a) The statutory contribution requirements involve "cliffs" where a small change in funding status can lead to a very large change in the minimum required contribution.
- b) Contribution volatility and contribution unpredictability have been cited as one of the most important reasons for abandoning defined benefit pension plans.

#### **2. Two partial solutions involving funding.**

- a) A swing to cash-matched investment-grade bonds will eliminate much of this volatility.
- b) A policy of maintaining pension fund surpluses – balances that exceed minimum required amounts – will also permit the smoothing of contributions.
  - (1) To make this approach effective, rules on deductible contributions and asset reversion taxes will need to be reformed.
  - (2) Given a spike in what would otherwise be a minimum contribution requirement, the sponsor could choose to permit the buffer between minimum balances and actual balances to be narrowed temporarily.
    - (a) This availability of surplus would replace the “credit balance” that has often been treated as a way of avoiding contributions that would otherwise be mandated.
    - (b) In contrast to the credit balance, a surplus would never exist if assets were insufficient to fund accrued benefits.
  - (3) Similarly, when minimum contribution requirements would otherwise fall precipitously, the sponsor could choose to let the buffer become greater temporarily.

### **3. Plan design as a partial solution.**

- a) Past service benefits.
  - (1) If the FIN CON approach were followed, the customary method for establishing new or additional past service benefits could cause a major jump in contribution requirements in the year the benefits are added.
  - (2) One way to mitigate this problem would involve a change in the law permitting establishment of temporary unfunded plans providing non-guaranteed new or liberalized past service benefits.
    - (a) During this temporary period, the sponsor would be permitted to make deductible contributions to a special trust.
    - (b) At the end of the period, the sponsor would be required to abandon the unfunded benefit or use the special trust to fund the benefit.
    - (c) This approach is discussed in more detail in the author’s paper: “Fixing the Pension Plan Funding Rules” Journal of Pension Benefits Summer 2004, Aspen Publishers, Inc., New York, NY.
  - (3) Another way to mitigate the problem would be to phase in the new or liberalized past service benefit.
    - (a) For example, in the first year of the plan or amendment, the new benefit might become part of the accrued benefit for participants then 62 and older.
    - (b) In the second year, it might become part of the accrued benefit for participants then 55 and older.

- (c) Each year, the new benefit would be extended to additional participants until it had been fully phased in.
- b) Benefits related to final average pay.
  - (1) When benefits are related to pay late in a participant's career, the benefit accrual pattern is skewed aggressively towards the participant's final years of service.
    - (a) To a great extent, this reduces the risk pool to a small group of older, longer service, participants and increases volatility.
  - (2) Because of difficult-to-predict trends in compensation inflation, benefit costs, when benefits are related to pay averaged over a short period, tend to be less stable than costs when benefits are averaged over the participant's career.
  - (3) For these reasons, volatility would be reduced if plan design emphasized career pay benefits and de-emphasized final pay formulas.
  - (4) Volatility would be further reduced if plan design emphasized uniformity of year-by-year accrual values rather than uniformity of pension benefit income accruals.
- c) Subsidized options.
  - (1) Consider optional pension commencement ages and optional forms, where benefits exceed the actuarial equivalent of the normal benefit payable from normal retirement age.
  - (2) Existence of these subsidized options tends to increase funding volatility.
    - (a) Utilization of these options depends on participant elections that are difficult to predict.
    - (b) Especially with subsidized early retirement benefits, participant elections are affected by short-term economic conditions.
  - (3) Volatility would be reduced if plan design de-emphasized subsidized options.
- d) It is interesting to note that most cash balance plans incorporate all of the design features suggested, here, as ways to reduce volatility.

## **C. Controlling Accounting Volatility.**

### **1. The problem.**

- a) Just as with minimum contribution requirements, adoption of the FIN ECON approach to asset valuation and amortization of "non-recurring" items will tend to increase volatility in accounting costs and liabilities.
- b) As with minimum contribution requirements, accounting volatility has been cited as an important reason for abandoning defined benefit pension plans.

### **2. The solution.**

- a) As with minimum contribution requirements, a swing to cash-matched investment-grade bonds will eliminate much of this volatility.
- b) The plan design changes described above in Section B.3 will also help eliminate accounting volatility.

## **VI. About Funding Levels**

### **A. The Participant's Perspective.**

#### **1. The nature of the pension obligation.**

- a) As already discussed, unpaid accrued pension benefit obligations are loans from participants to the sponsor.
- b) However, these loans differ from most commercial loans in an important respect: the lenders (the participants) are not establishing diversified loan portfolios.
  - (1) They must deal with just one borrower: the plan sponsor.
  - (2) This inability to diversify can present the lenders with a special concentration risk.
  - (3) This special risk is largely avoided if the pension benefit obligation is fully secured through funding at an optimum level.
  - (4) Without this security, participants will place a lower value on that part of their compensation package consisting of pension benefit accruals.
  - (5) As with volatility, the inevitable consequence will be a demand for an offsetting increase in some other part of their compensation package (direct pay or other benefits).

#### **2. The sponsor's most efficient course of action.**

- a) Consider the sponsor who has identified the need for some form of unsecured loan.
- b) The sponsor can satisfy this need by failing to fund its pension plan optimally.
  - (1) This course will lead to a demand for increases in other elements of participants' compensation.
- c) Alternatively, the sponsor can satisfy this need by funding its pension plan optimally, and borrowing from other sources.
  - (1) This course will be more cost efficient: it avoids participant demands for increases in other elements of their compensation package.

### **B. The Optimum Funding Level.**

- 1. Establishing a diversified portfolio of investment grade bonds that cash matches all accrued disbursement obligations will go a long way in achieving an optimum funding level.**

- a) However, as previously discussed, even a diversified portfolio will experience some defaults.
- 2. Thus, the optimum level of funding will include a small surplus to cover these inevitable defaults.**

### **C. Financial Economics Issues?**

- 1. In contrast to issues involving asset allocation, issues involving funding level appear to flow directly from FIN ECON considerations.**
- 2. The point is that it is more efficient for the sponsor to borrow from outsiders than to establish any part of the pension obligation as an unsecured debt.**

## **VII. Summary**

### **A. The Plan Sponsor's View of FIN ECON Concepts.**

- 1. On first impression, many plan sponsors will find them objectionable.**
  - a) Lower assumed interest rates will increase apparent costs.
  - b) The absence of smoothing devices will be viewed as undesirable.
  - c) There will be resistance to a movement away from common stocks.
- 2. On a longer-term basis, many sponsors may find them desirable.**
  - a) In many cases, the shift to ABO concepts will tend to decrease apparent costs.
  - b) In even more cases, the shift to ABO concepts will decrease balance sheet liabilities.
  - c) Costs and fund balances will be more realistically portrayed.
  - d) Using cash-matched investment-grade bonds and maintaining fund balances greater than the minimum will bring contribution stability.
  - e) Moving equities out of the pension fund and into the investor's portfolio will reduce the investor's tax burden.
  - f) Treatment of fund balances as corporate assets will be viewed with favor by many plan sponsors.

### **B. The View of Participants and Society.**

- 1. Pension promises will be better secured.**
- 2. The cost of Pension Benefit Guaranty Corporation guarantees will be reduced.**

### **C. The Pension Actuary's View.**

- 1. Novelty.**

a) FIN ECON concepts are novel to many current pension actuaries.

**2. Client reactions.**

a) There will be valid concern over client reactions.

**3. The long term.**

a) Over the long term, the pension actuary may decide that FIN ECON concepts have great merit.

b) At that point, pension actuaries are likely to embrace these concepts.